Contents October 1920

MOTOR BOATING

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Advertising Index will be found on page 110

MOTOR BOATING

Best Average Speeds

(Six one-mile runs)
Hydroplanes
Miss America....76.655 m.p.h.

Runabouts
(Aviation motors)
Miss Nassau..... 49.25 m.p.h.

Made at Detroit

Runabouts
(Marine motors)
Rainbow .....38.91 m.p.h.

Express Cruisers
Betty M.....24.11 m.p.h.

"Gar" Wood, the world's foremost racing boat owner and driver and Paul Strassburg, owner and driver of Sure Cure, a 48½-mile Hacker runabout

A SEASON OF WONDERFUL ACHIEVEMENTS

SEVENTY-SEVEN MILES AN HOUR MADE BY MISS AMERICA—RUNABOUTS DE LUXE DEVELOPED AS RESULT OF FISHER RACE—CASH PRIZES WITHDRAWN FROM IMPORTANT EVENT—THE COMING MOTOR BOAT SHOW IN DECEMBER

THE greatest month in motor boat racing that the world has ever known has just come to a close. Beginning with Gar Wood's win in England with Miss America and Miss Detroit V, which resulted in bringing back the British International Trophy to American shores and continuing on the St. Lawrence when Miss Toronto established a new American record and finally ending on September 15th at Detroit, when Miss America broke every world's record from one to thirty miles, is an achievement which will be very hard to better.

GREAT SUCCESS OF FISHER TROPHY RACE

Perhaps the point of greatest importance in connection with the racing events of the year is the great interest shown this year by boat owners, naval architects, engine and boat manufacturers and the general public in the race for the Fisher Trophy which was open to runabouts of over 32 feet in length and powered with one or more stock marine motors.

This event was the first attempt in the marine field to conduct a reliability-speed test of marine motors and the perfect scores of the two Sterling motors which were entered, and one of the five Hall Scott marine engines which participated was very gratifying. The boats, too, were all of a very wholesome type and showed much forethought and intelligent planning on the part of their designers and builders. From a racing standpoint and a sporting event, no race was ever more keenly contested or more interesting.

AVIATION MOTORS IN HYDROPLANES

The publicity which has been given to the use of aviation motors in boats during the past year has had its effect upon one or more builders who have endeavored to create a demand for Liberty motors for marine use. These motors which have been rebuilt to make them suitable for certain kinds of marine service certainly stood the test in the hydroplanes Miss America and Miss Detroit V. But here again the general public should not take it for granted that any old aviation motor is suited for all kinds of marine service for it is not. To be of any service whatsoever requires intelligent rebuilding by those who know the requirements of a marine motor and what is more important after the motor is installed in the proper type of boat, it requires intelligent handling and the proper service.

CASH PRIZES WITHDRAWN FROM WOOD RACE

It is very gratifying to note that what might have been a very embarrassing situation was relieved when Mr. Wood withdrew his cash prize offer in connection with one of the recent races at Detroit and decided to offer merchandise or other trophies of the winner's own choice. We believe that the officers of the International Power Boat Union showed good judgment in accepting Mr. Wood's new offer. We cannot believe that the time is yet here to offer cash prizes to be competed for by the type of men who raced at Detroit this year. The Fisher race without cash prizes had six entries and the Wood race had three. We know it for a fact that two of the three entries for the Wood race would have refused to start had the cash prize stood.

NOW FOR THE MOTOR BOAT SHOW

The next event of major importance is the Motor Boat Show which is scheduled to open in New York City Decem-

(Continued on page 54)

Photographs by M. Rosenfeld

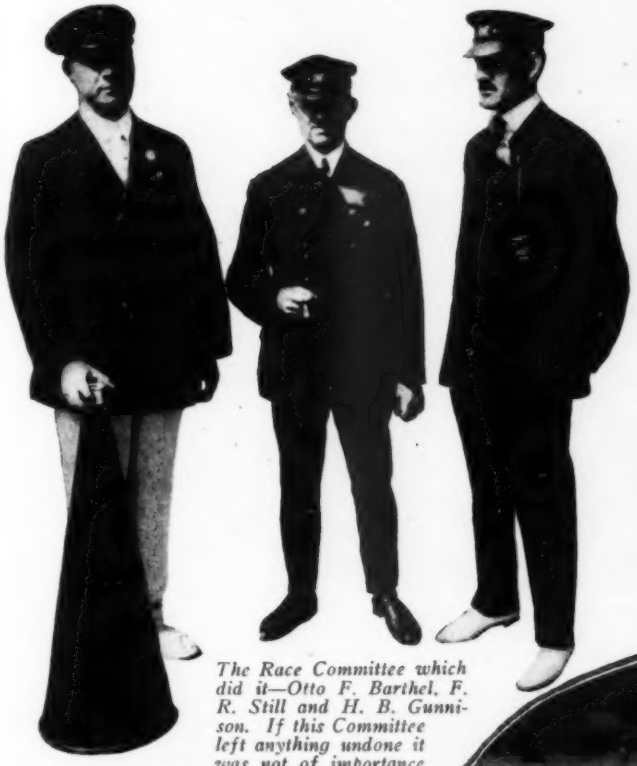
COMMODORE JAMES H. HAMMOND

James H. Hammond of Pittsburgh, Pa., Commodore of the Thousand Islands Yacht Club, Alexandria Bay, New York. Commodore Hammond is a firm supporter of amateurism in motor boating sports and besides owning several fast motor boats of the runabout type, he is part owner of the hydroplane Mistiyc which will represent his club in racing events in 1920. Much of the credit for the success of the recent races on the St. Lawrence River is due to Commodore Hammond's personal energy and supervision

The upper insert shows Mr. and Mrs. Pitcairn, Commodore Hammond's son-in-law and daughter in their runabout, Alice. The view at the right is the Commodore's boat-house on the St. Lawrence

The Eighty-Mile-an-Hour Boat Now a Fact

Garfield A. Wood of Detroit, Mich., Shows the World What Has Been Accomplished in Speed Boat Development in One Year—Races for the A.P.B.A. Gold Cup and One-Mile Trophy



The Race Committee which did it—Otto F. Barthel, F. R. Still and H. B. Gunnison. If this Committee left anything undone it was not of importance as the race details were the best ever

IF anyone ever had any doubt about the superiority of the hydroplane Miss America owned by Gar. A. Wood of Detroit over every other speed boat in the world, this doubt was settled once for all at this year's races for the American Power-Boat Association Gold Cup held September 11th to 15th. Miss America simply ran every other boat off its feet—if boats have feet—and smashed every existing world's record for all distances by such a margin that it now seems strange that boats went only 60 miles an hour a year or two ago. Miss America's best speed for a 30-mile race was 70 miles an hour flat and for one 5-mile lap, 71.4 miles per hour. In the mile trials she let loose again and was clocked at an average speed of 76.655 miles per hour in her three one-mile runs with the current and three against it. In her first run down stream the three watches at the lower end of the course showed she had covered the mile in 45.6 seconds, or at the rate of 79 miles an hour. However, just at that moment the timing telephone line connecting the two timing stations went temporarily out of business and the watches at the upper end showed 47.4 and 46.4 seconds. On account of this discrepancy it was necessary to disregard this first run.

Conditions and arrangements at this year's Gold Cup races were as near perfect as it is possible to imagine. There was not a postponement during the five days of racing. The racing drivers have learned that when the Detroit race committee announce a start at a certain hour that the race will start at that hour. This arrangement was highly pleasing to the spectators who lined both shores of the Detroit River by the thousands and had a close-up view of the fastest hydroplanes in the world competing.

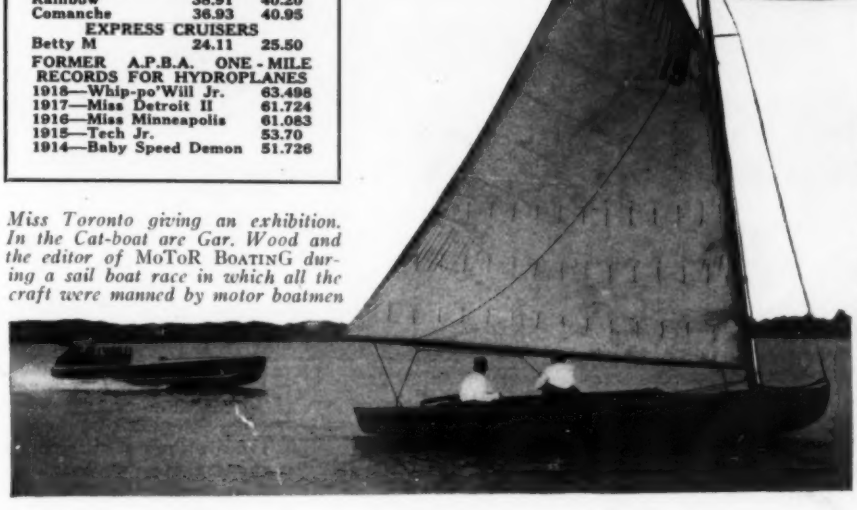
The race committee consisting of Messrs. Barthel, Still, and Gunnison are certainly to be congratulated on the race arrangements. Not one hitch marred the events. A committee of Detroiters representing the A. P. B. A. acted for that organization and the ar-

Miss America running at 78 miles an hour with Gar. Wood at the wheel

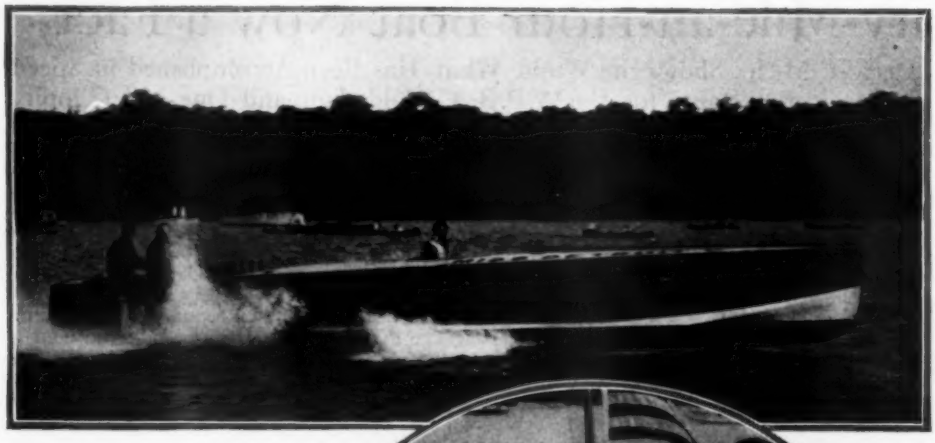
SPEEDS MADE IN A.P.B.A. ONE-MILE SPEED TRIALS
DETROIT RIVER, SEPT. 15, 1920
(3 runs with current and 3 against current)

HYDROPLANES	Average of 6 Runs M.P.H.	Best Mile Down Stream M.P.H.
Miss America	76.655	77.698
Miss New Orleans	58.44	59.90
RUNABOUTS (Aviation Motors)		
Miss Nassau	49.25	50.40
Sure Cure	47.87	48.40
Gar. Jr.	45.83	47.55
RUNABOUTS (Marine Motors)		
Rainbow	38.91	40.20
Comanche	36.93	40.95
EXPRESS CRUISERS		
Betty M	24.11	25.50

FORMER A.P.B.A. ONE-MILE RECORDS FOR HYDROPLANES	
1918—Whip-po'Will Jr.	63.498
1917—Miss Detroit II	61.724
1916—Miss Minneapolis	61.083
1915—Tech Jr.	53.70
1914—Baby Speed Demon	51.726

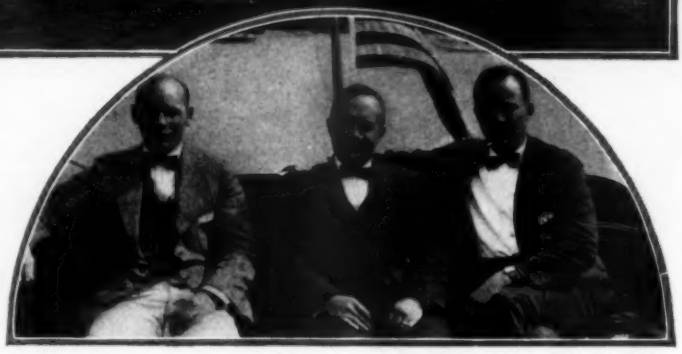


Miss Toronto giving an exhibition. In the Cat-boat are Gar. Wood and the editor of MoToR BoatinG *during a sail boat race in which all the craft were manned by motor boatmen*



Miss Detroit V at 60 miles an hour

rangement worked out well. On that committee were F. R. Still, G. A. Wood, W. E. Metzger, O. F. Barthel, C. W. Kotcher, W. D. Edenburn and J. Lee Barrett. The judges included Sheldon Clark of Chicago, Commodore W. E. Scripps of Detroit, Capt. James Beatty of Toronto, Charles P. Hanley of Muscatine, Iowa, Capt. F. C. Hecox of Texas, L. J. Bailey of Bay City, Guy W. Vaughan of Monroe, Mich., L. L. Tripp, of Albany, N. Y., John L. Hacker of Detroit, W. C. Morehead of Milwaukee, William Gibb of Middletown, Conn., Walter Moreton of Boston, Wilbur B. Young of New York. Of course Henry Sampson, Jr., of New York, official timer of the American Power-Boat Association was present and acted in his usual efficient manner, missing only one boat during the week.



Three of the judges—W. C. Morehead of the Great Lakes Boat Building Corp., W. E. Gibb of the Frisbie Motor Co., and Guy W. Vaughan of the Van Blerck Motor Co.

Aside from the record-breaking performances of Miss America and the speed demonstration by Miss Detroit V, the two boats which outdistanced England's best on their own home waters on August tenth and eleventh, there was not a great deal to make the Gold Cup races of 1920 exciting. Miss Toronto was scheduled to start, but, due to the postponement of the Toronto races, she did not reach Detroit until after the first heat of the Gold Cup contest had been run. She was present for the second heat, all tuned up and apparently working fine, but she went dead less than 5 minutes before the starting time and could not be restarted, owing to the burning out of some of her starting mechanism. Mr. Ericson was at Miss Toronto's wheel and took his turn of hard luck like a sportsman, not offering one word of complaint because the race was starting as scheduled with his craft drifting helpless a short distance from the starting line. It was one of the fortunes of hydroplane racing and Mr. Ericson showed himself to be a true sportsman.

Another view of Miss America

Miss New Orleans entered by the Southern Yacht Club

Miss New Orleans was entered, representing the Southern Yacht Club, the first time that this section of the country had been represented in a northern racing event. Miss New Orleans was fast and had she competed a year ago instead of in 1920, she might have taken the trophy home with her. However, the Southern entrant was no match for either Miss America or Miss Detroit V, although Miss New Orleans showed in the mile trials that she was a 60-mile boat.

(Continued on page 54)

Lornina, One of the New Ones

Photographs, E. Levick

After cockpit of Lornina looking forward

Going at almost 23 miles is easy for her Van Blerck motor

The roomy forward cabin of Lornina

ONE of the most recent cruisers this season is Lornina. She is an attractive day cruiser of the Countess type, designed by Wm. H. Hand, Jr., and owned by Wm. Lyman Underwood, of Boston and South Dartmouth, Massachusetts.

As is usual in the case of fast boats designed by Mr. Hand, Lornina is equipped with a Van Blerck power plant. An eight-cylinder Model M-8 Van Blerck gives to Lornina the pleasant speed of almost twenty-three miles per hour. This is the third boat which Mr. Underwood has built in the past five years and all of them have been Hand designed and Van Blerck powered.

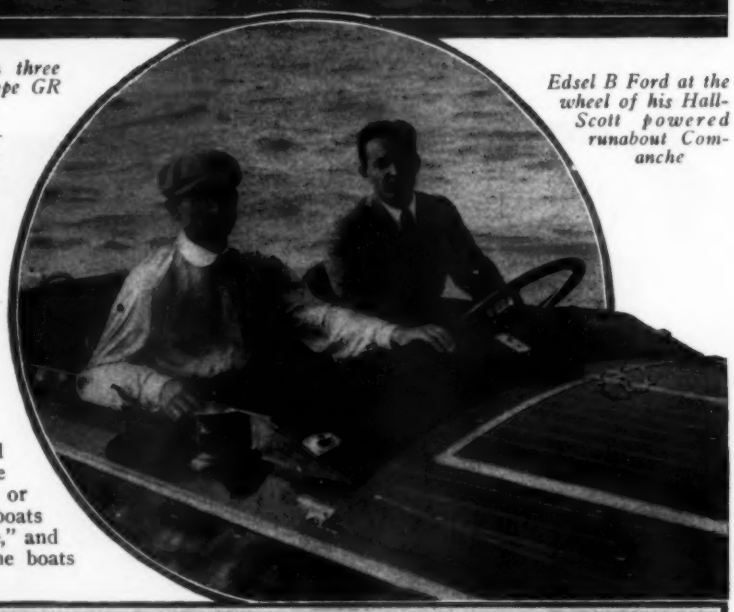
Lornina is 45 feet long with a beam of 10½ feet. She is a day cruiser with an exceptionally roomy cockpit and bridge deck. The motor is installed underneath this bridge deck and is provided with ample light and ventilation. Under the cabin trunk is located an excellent galley. The furnishings are very complete and sleeping accommodations are provided for four persons. White enamel trimmed with bright mahogany is used for the interior finish and the effect is pleasing.

The latest model Van Blerck motor with which Lornina is equipped is provided with the new fuelizer which has just been perfected and is rapidly being introduced on all these engines. This machine will control from very low speeds to a maximum of 1,400 r.p.m. instantly at the opening of the throttle. The power developed is in excess of 200 h.p. at the high speeds. This motor is very compact and is the development of the model used in the Countess, the famous Hand express cruiser which succeeded in establishing many new records and winning most of the long-distance races several years ago, on Long Island Sound and adjacent waters. The flexibility and quiet running of this motor have much to do with its ability to operate continuously for long periods of time without a stop. Lornina is a success in every way.

Fisher Event Produces Perfect Hulls and Engines

Five Boats Compete in Three Fifty-Mile Heats Without Repairs or Adjustments and Several Make Perfect Scores—A New Era in Serviceable Runabouts

Rainbow winner of the Fisher Trophy in three straight heats. Her power is a 6-cylinder type GR Sterling motor



Edsel B Ford at the wheel of his Hall-Scott powered runabout Comanche

THE first series of races for the Fisher Trophy representing the American Power Boat Association Displacement Boat Championship of America has been held. This is the trophy which was offered by Carl G. Fisher of Indianapolis, at the Gold Cup races two years ago after he had become disgusted with hydroplane racing, the break-downs and sinking of the competing craft and continual postponement of the races due to rough water and unpreparedness of the racing boats to be ready to start at a given time and to go the specified distance.

Mr. Fisher said "Let's have a race" and "Let's have a race which will start at three o'clock irrespective of everything, fog, rain or what not" and "Let's have a race among boats which are some good for some useful purpose," and "Let's have a race where the engines in the boats will have to be real engines that can go the entire distance without rebuilding each night after each heat as always has been done in racing boats in the past." "Let's make the marine engine manufacturers develop a motor which is not junk. Make the architects use their brains. I'll give you my check for $5,000 for a trophy—Mr. James Allison will give $1,000 in merchandise to the winner each year. Those are my ideas—now go to it and see what will result."

The story of what has happened within these two years from the time the race was first suggested until the first race became a fact a few days ago at Detroit has been told and retold many times. It has been the cause of many heated arguments

Comanche, the Ford runabout in the Fisher race

Snap Shot, the Sterling powered craft which finished second in each of the three races

Falcon III, a twin screw outfit which showed the greatest speed but could not maintain it

among boatmen and between engine manufacturers and boat builders. It has been the real reason for the formation of a new association of boatmen in one section of the country which desired to promote the use of aviation motors in the runabout type of boat and the racing for big cash prizes, both of which stipulations the Fisher race most emphatically prohibited. But all of these arguments which have been made against the terms of the Deed of Gift and many more besides which are too petty to mention at this time, fade into the dim distance in comparison with the real object of the Fisher Trophy Race. There is no doubt but that the object sought has been accomplished—in fact, there were many present at the first races who believed the results were even better than the ideal which was anticipated two years ago when the idea was first conceived.

The principal result of the race has been the development of a real boat and a real marine engine—an engine which can drive a boat better than 35 miles an hour for 150 miles without repairs, replacements or adjustments of any kind—an engine equipped with a self-starter and a serviceable reverse gear—a boat having seating accommodations for four persons, sufficient water-tight bulkheads to prevent sinking in case of accident, a boat exhausting at the stern and with motor compartment entirely closed in.

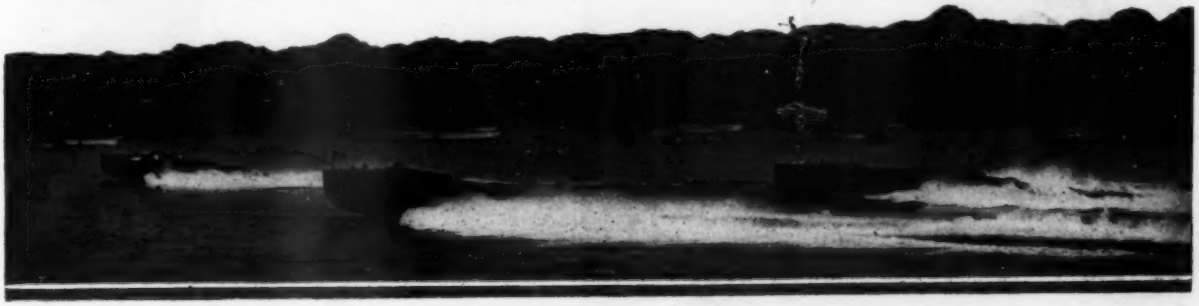
The motors which qualified in the Fisher Trophy Race were of two makes, viz., Sterlings and Hall-Scotts. Sterlings powered both the winner and the boat taking second. Hall-Scotts took third and fourth places, a very creditable showing but second to Sterling, it must be admitted. The only boat of the five starters which failed in the three 50-mile non-repair heats was Comanche, owned by Edsel B. Ford, son of the automobile manufacturer. His motor,

Carl G. Fisher, donor of the trophy, congratulating Messrs. Sampson and Chapman of the American Power Boat Association, on the success of the race and the type of boat that it produced

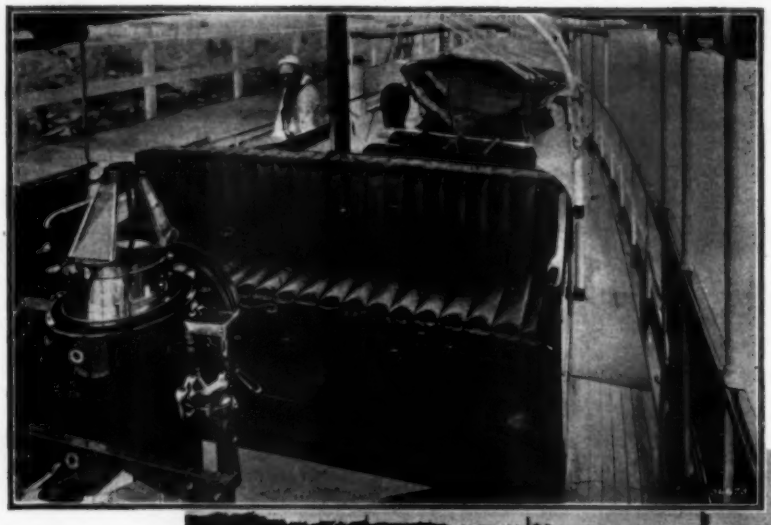
while complying with the "stock marine" requirement, yet had been tampered with to some extent by engineers from the Ford plant to make it better able to go the distance with the inevitable result—failure.

The boats themselves were de luxe editions of the finest runabouts ever produced. The designers, Crouch and Hacker, had overlooked nothing to make them the very latest word

(*Continued on page* 48)



Dough Boy, Snap Shot and Falcon III having a little race all their own



All controls are centered on the bridge deck with the motors close at hand underneath. It is a simple matter for one man to run this boat

When the pair of Sterling motors are opened up Onyx will travel at nearly 25 miles per hour. New propellers are expected to improve this speed

Photographs by Manning Bros. Detroit

Onyx, Detroit's Latest Cruiser

Remarkable Cruiser Just Delivered to Its Owner by the Great Lakes Boat Building Corporation

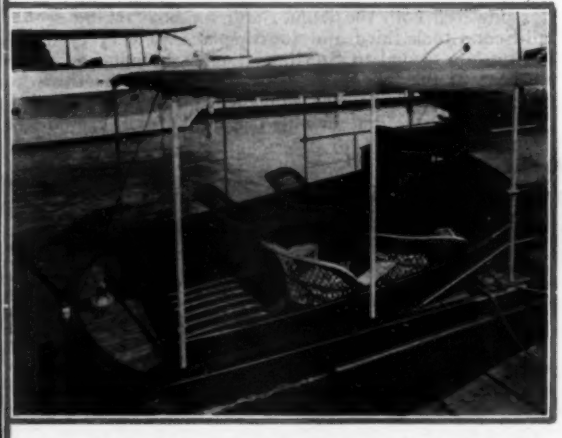
ONYX is the latest cruiser to be added to the Detroit fleet. She is owned by Herbert V. Book and was but recently delivered by the Great Lakes Boat Building Corporation. Finished on a Friday afternoon, she was launched at 4 P. M. and at 8 P. M. Saturday left Milwaukee for her home port, completely outfitted.

Her 54-foot boat length is divided successively into galley, forward cabin, bridge deck with engines below aft cabin and a commodious cockpit. Conveniences include a well appointed bath-room with a shower adjoining the after cabin, electric lights and a pressure water system.

The motors are twin six-cylinder Model GR Dual Valve Sterlings which, turning 1350 r.p.m., afford a speed of 24.6 m.p.h. It is expected that a change in wheels will raise the speed which is even now above that of the average six-cylinder installation.

The interior is finished in paneled mahogany and white enamel with gray upholstery, and the many refinements which characterize a stock express cruiser, after a number of similar boats have been built, are to be found aboard.

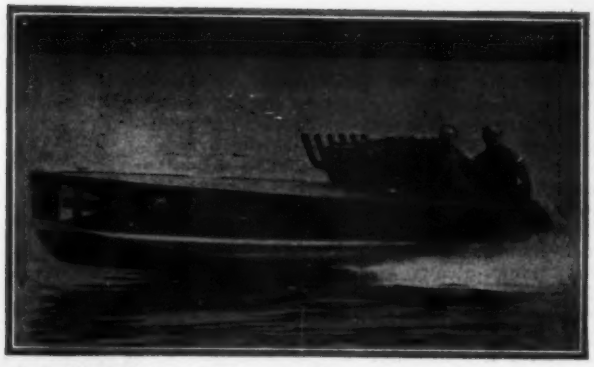
The main saloon aft is large and roomy



Ease and comfort are the lot of those who elect to ride in the spacious after cockpit

Photographs by M. Rosenfeld

Jack Bickell and F. G. Ericson, owners and drivers of Miss Toronto



Arab IV, which showed remarkable speed but unfortunately sank in the first race

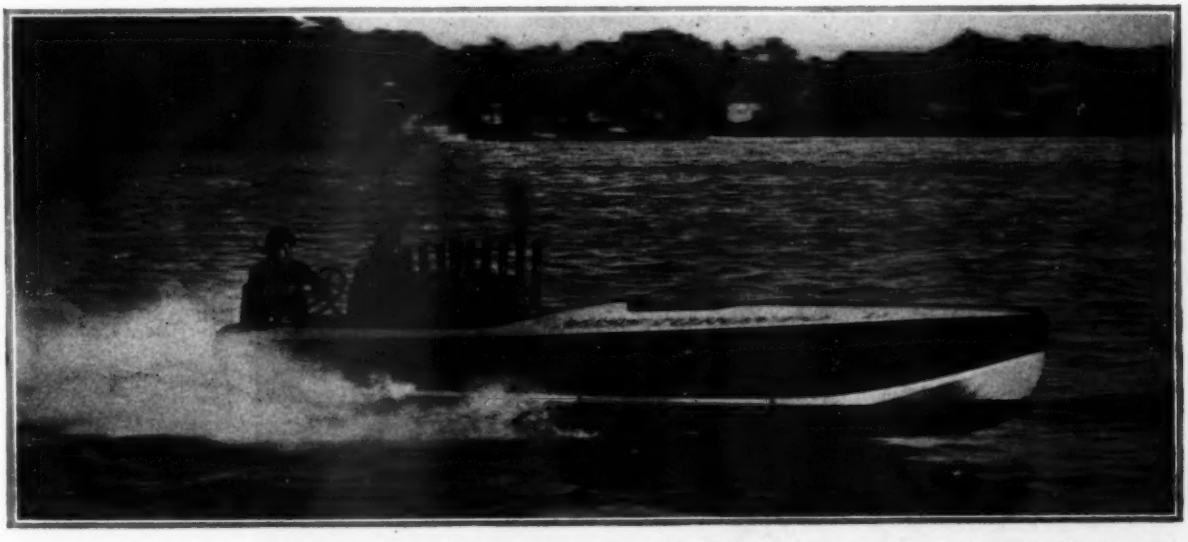
Miss Toronto Wins on St. Lawrence

Very Successful Series of Events Conducted by the Thousand Islands Yacht Club for Hydroplanes and Displacement Racers

IT was in 1905 that the racing of fast motor boats was taken up seriously on the St. Lawrence river. That year the third race for the famous American Power-Boat Association Gold Cup was held and it fell to the honor of the Chippewa Bay Yacht Club to defend the trophy. Their defending boat was Chip II which was powered with a motor having the enormous rating of 10¼ horse-power. Three 30-mile heats were held and Chip's best time for the 30 miles was 1 hour 52 minutes 38 seconds which when converted into miles per hour becomes equivalent to 15.9. However, this race was a handicap affair and it should not be supposed that Chip II was the fastest of the ten racers which finished, because the records show that Shooting Star II covered one 30-mile heat at a speed of 24.2 miles an hour.

For nine successive years the Gold Cup was held on the St. Lawrence river until Count Mankowski's Ankle Deep came along in 1913 and took the trophy to Lake George. A few years later the Thousand Islands Yacht Club Silver Trophy for the American Power-Boat Association Championship of the St. Lawrence river was offered and has been competed for since then.

One familiar with motor boat racing events for the past fifteen years will appreciate that the St. Lawrence river clubs are the ones really responsible for the start given to motor boat racing events in this country. Another great honor has just come to them for in this year's races for the Thousand Islands Yacht Club Challenge Trophy held late in August by the Thousand Islands Yacht Club, 60 miles an hour was made in competition for the first time in this country. Although the privilege of being the first boat to make a mile a minute speed in an actual race against other craft fell to a Canadian boat, Miss Toronto II, yet she is of American design and powered with an American motor, in fact she was built largely in this country and



Miss Toronto II had no trouble in winning in the hydroplane class. She established a new speed record for the St. Lawrence

shipped to Canada for the finishing touches.

Miss Toronto is a Smith craft, a similar, if not the identical craft, which was exhibited by the builder at last winter's motor boat show in New York City and largely advertised as Miss America, but which was not the real Miss America which brought back the British International Trophy as was told in the last issue of MoToR BoatinG. Miss Toronto is owned by a syndicate of members of the Toronto Motor Boat Club, chief of whom are Jack Bickell, F. G. Ericson, Alfred Rogers, Capt. James Beatty and a few others. Mr. Ericson's boat was a finished product in every sense — fast, seaworthy, readily handled — in fact, a very successful outfit. It was a job which for a hydroplane was as near perfect as we have ever seen. She was more like a serviceable runabout than a hydroplane of the type with which most people are familiar. She had the speed, too, although lack of competition made it unnecessary for her to show what she was capable of when "opened up".

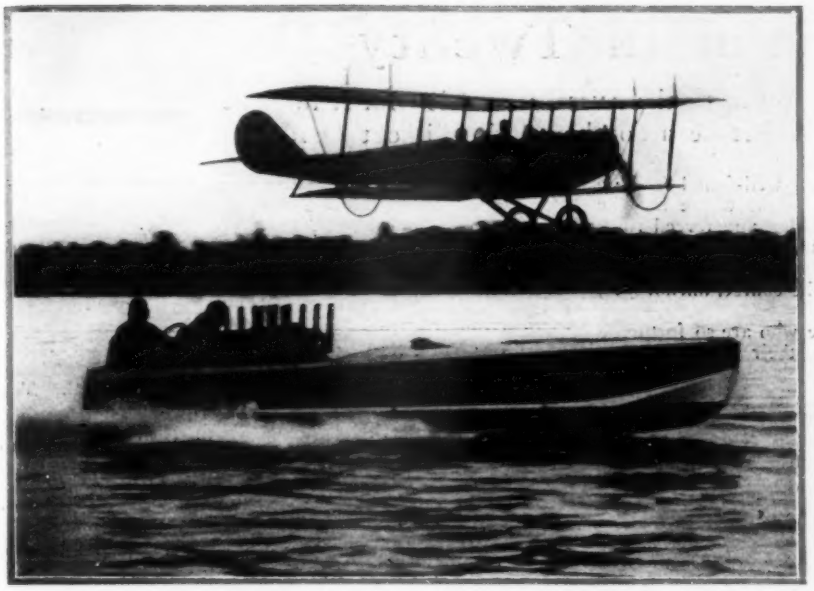
Smiling Jack Bickell was at the wheel of Miss Toronto and Mr. Ericson was engineer. This combination also was something new in hydroplane racing circles. Never before have we had the two owners of a fast boat acting as helmsman and mechanic of their own boat. It shows the best sort of sportsmanship and speaks volumes for the amateurism of racing on the St. Lawrence. Their handling of their craft, too, was far superior to that of many professional crews we have seen.

When Jack Bickell and Ericson were not using Miss Toronto for racing they were demonstrating her and showing the possibilities of a 60-miler for runabout purposes. Sometimes two and sometimes three passengers were carried in addition to the crew of two. Mr. White of Rudder and Alfred Loomis generally of MoToR BoatinG but temporarily farmed out, were late to catch a train so precious minutes were saved for them by putting them aboard Miss Toronto. Commodore Engliss — boatman for 62 years, 27 of which have been on the St. Lawrence and Frank Redpath, nearly as young, were shown what a thrill it is to hit up a mile a minute clip. They swear that they hit only the high spots.

The race officials—Commodores Hammond and Hoag and Mr. E. L. Woodruff

PDQ VI, formerly a Gold Cup contender, but now used as a fast runabout. She is owned by Alfred Graham Miles

Brush By winner of the class for displacement racers. She set up a record of 38.1 miles an hour for 20 miles. Her power is a 6-cylinder Hall-Scott



Miss Toronto winning a race with her owner's airplane

Chester R. Hoag of Newark, N. J., and Clayton, N. Y., and several other addresses, who complains that he has only two vacations a year of six months' duration each, but who has used up a good part of these vacations for many years promoting motor boat racing at the Thousand Islands, was repaid for his many years at the helm. He boarded Miss Toronto looking a little pale but he disembarked smiling and singing her praises. And the ladies were not barred either. Mrs. Jean Chapman Hammond, daughter of Commodore Hammond and wife of J. Sidney Hammond, who is quite some motor boatman himself, was given a sail in the forward cockpit of Miss Toronto while Mrs. Arthur Utz, wife of the popular Hall-Scott distributor, occupied a seat aft. Mrs. Hammond will be remembered by the readers of MoToR BoatinG as the owner and driver of Sylvan, one of the famous runabouts on the St. Lawrence a few years ago.

(*Continued on page 52*)

The Thousand Islands Yacht Club Regatta, August 25, 26, 1920

Boat	Owner	Start	First Round		Second Round	Third Round	Fourth Round	Fifth Round	Elapsed Time	Speed
DIVISION 5—DISPLACEMENT RACERS—August 25—Length of Race, 19½ Miles										
Brush By (Hall Scott)	G. B. Sullivan	5:00:18	5:08:03		5:16:20	5:24:43	5:32:23		32:23	36.4 m.p.h.
Leopard V (Hall Scott)	Griff Clark	5:00:14	5:08:52		5:17:26	5:25:59	5:33:52		33:52	35.0 m.p.h.
Hel Scoot (Hall Scott)	S. B. Northrup	5:00:16	5:08:37		5:16:59	5:25:15	5:32:58		32:58	35.8 m.p.h.
DIVISION 6—HYDROPLANES—August 25—Length of Race, 29½ Miles										
Packard (Packard)	F. H. Taylor	5:00:29	5:12:07		5:23:19	5:34:20	5:46:56		46:56	25.2 m.p.h.
Miss Toronto (Liberty)	Toronto Motor Boat Club	6:15:28	6:20:28	6:25:59	6:31:29	6:37:29	6:43:20	6:48:29	33:29	52.99 m.p.h.
PDQ VI (Sterling)	A. G. Miles	6:15:36	6:23:38	6:31:17	6:39:02	6:47:01	6:55:08	7:02:12	47:12	37.6 m.p.h.
DIVISION 5—DISPLACEMENT RACERS—August 26—Length of Race, 19½ Miles										
Brush By	G. B. Sullivan	5:00:13	5:07:56		5:15:42	5:23:50	5:30:59		30:59	38.1 m.p.h.
Leopard V	Griff Clark	5:00:11	5:08:21		5:16:33	5:24:45	5:32:20		32:20	36.4 m.p.h.
Hel Scoot	S. B. Northrup	5:00:11	5:08:57		5:17:50	5:27:41	5:37:03		37:03	30.2 m.p.h.
Packard	F. H. Taylor	5:00:26	5:12:08		5:23:47	5:35:21	5:46:15		46:15	
DIVISION 6—HYDROPLANES—August 26—Length of Race, 29½ Miles										
Miss Toronto	Toronto Motor Boat Club	6:14:26	6:19:38	6:25:05	6:30:27	6:35:33	6:40:36	6:45:16	31:16	56.9 m.p.h.
PDQ VI	A. G. Miles	6:14:44	6:23:20	6:32:15	6:41:34	6:51:10	6:59:50	Called in		

Leopard V, owned by Griff Clark of Toronto, tied for second place. Her power is a 6-cylinder Hall-Scott marine motor and she is a runabout in every sense

Hel Scoot, Hall-Scott powered, tied for second place with Leopard V

To Miami in Twenty Days

Schedules to Enable the Average 10-Mile Cruiser to Successfully Undertake a Southern Trip Without Hardship

AN itinerary of an ideal trip for any well-found ten-mile cruiser, showing how this 1,300-mile cruise may be done in good time, and yet without any forced runs. The objective point of each day's run, and the number of nautical miles covered, also the total number of miles from New York. Some characteristics of the course, anchorages, etc., and a few directions.

This is the time of year when those who are so fortunate as to be able to go south are making their plans, and this itinerary is most timely.

Chart giving the general location of the principal points en-route to Florida

Days out of New York	From and to	Length of Run in nautical miles	Total distance from New York	Anchorage, Characteristics of Runs, etc.
1st day	New York, N. Y., to New Brunswick, N. J.....	29	29	Leave Battery, New York, at noon. Tie up river or canal. Toll charge.
2nd day	New Brunswick to Bordentown, N. J..	39	68	Whole day devoted to traversing Delaware and Raritan Canal. Speed limit, 4 stat. miles; 13 locks, 21 drawbridges.
3rd day	Bordentown to Chesapeake City, Md...	72	140	Run down Del. R. No. stop at Phila. Tie up for night in Chesapeake & Delaware Canal before reaching Chesapeake City. Speed limit, 4½ miles (stat.).
4th day	Chesapeake City to Annapolis, Md.....	50	190	Arrive Annapolis 2 P. M. Take on gas and provisions. Leave 4 P. M. for all-night run down ship canal in Chesapeake Bay. Rough water likely in places.
(A.M.) 5th day	Annapolis to Norfolk, Va.....	135	325	Arrive Norfolk 8 A. M. Anchor off yacht club on Elizabeth River. Take on fuel and supplies for three days.
(P.M.) 5th day	Norfolk to point in Dismal Swamp Canal, Va.....	15	340	Run up Elizabeth River 6 miles and Deep Creek 2½ miles into Dismal Swamp Canal. Tie up to bank midway of canal for night. Two locks. Toll charge.
6th day	D. S. Canal to Roanoke Marshes, N. C.	69	409	Course lies down Pasquotank River across Albemarle Sound, and down Croatan Sound to Roanoke Marshes, southwest of Roanoke Marsh light. Good water at Roanoke Marshes except when wind blows hard from N.
7th day	Roanoke Marshes to Adams Creek, N. C.	80	489	Run down Pamlico Sound to Neuse River and Adams Creek. Sound choppy and uncomfortable in strong wind. Run up well-marked creek and anchor near mouth to cut.
8th day	Adams Creek to Beaufort, N. C....	17	506	Arrive Beaufort midmorning. Take on gas and supplies for outside run to Charleston. Weather permitting, leave harbor at dusk on SW ⅛ S course for Frying Pan Shoals lightvessel, which pick up before dawn, running not quite full speed.
(A.M.) 9th day	Under way off Frying Pan Shoals, N. C.....	89	595	At 6 A.M. off lightvessel; change course to SW by ¼ W for 83 miles to bring Cape Romain lighthouse bearing NW by N,

(Continued on page 76)

As a dining room the after cabin cannot be beaten

The double berths in the main saloon take care of four with ease

the space they require here. The engine room space under the bridge divides the boat into two separate cabins. That forward contains two berths with plenty of locker space and the after one has two double berths, galley, lockers and additional lavatory. Both cabins are entered from the bridge, while the after one may be entered from the stern deck in addition. Fuel and water tanks of ample capacity allow of a wide cruising radius. On the bridge, side curtains and weather cloths are provided so that this space may be entirely closed if desired. Open air sleeping accommodations can be provided here without difficulty. A watertight bulkhead separates the after cabin and engine room, while another one protects the forward end of the boat in case of collision.

It is not our purpose to go into details of design and construction—reference to photographs of the boat will show how in seeking the structurally perfect they have attained the boat beautiful—thus satisfying the cardinal principle of architecture that nothing is beautiful which does not express structural strength.

Within this exterior is the niceness of arrangement of the smallest detail which is really the most notable feature of the boat. It is a comfortable, convenient and accessible use of every inch of space.

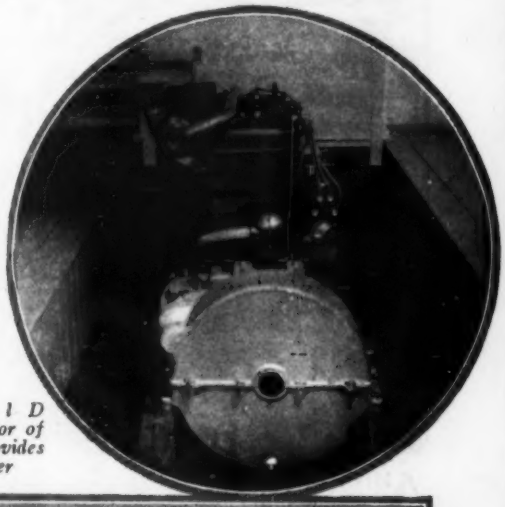
Vic, a 36-Foot Stock Crusier

Now Being Produced in Quantities by the Burger Boat Company, after designs by C. D. Mower

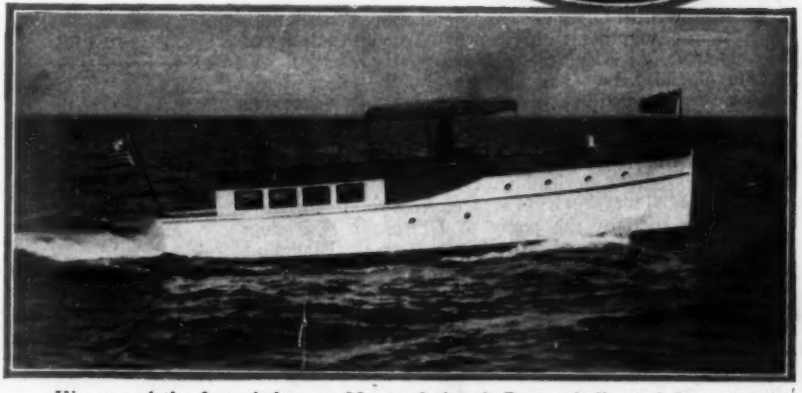
DESIGNED to incorporate all desirable features practical for a boat of this size, the latest stock cruiser of the Burger Boat Company is as nearly perfect as it is possible to be. Long years of boat building experience have been concentrated into the construction and standardization of this boat. The resulting cruiser offers more cruisability for its size and cost than had been considered possible previous to its completion. Comfort and convenience in arrangement are combined with the seaworthiness of larger and costlier craft.

Vic, one of the first few of these standardized cruisers to be delivered, is 36 feet long, as are all of these boats. A Scripps 35 h.p. model D, four cylinder, four cycle, motor equipped with an electric starting and lighting system is used for propulsion and can drive the boat at 11 m.p.h. All controls for operation and handling are brought to the bridge deck amidship where they are readily accessible. Ample space is provided in the engine room so that the motor can readily be inspected and repaired at all times.

Her high raised deck forward makes her very dry and snug in rough water and at the same time provides ample headroom in the quarters and toilet forward. The large, roomy bridge amidship was purposely designed to be the center of the outdoor space and provides comfort and ease for the crew. Six to eight people will readily find all



A model D Scripps motor of 35 h.p. provides the power



Vic, one of the first of the new Mower designed, Burger built stock boats to be delivered

Gar. Wood's Triumphant Return

The Winner of the International Motor Boat Championship is Royally Welcomed on His Return with the British International Trophy

That Detroiters are proud of Gar. Wood is evidenced by the presentation of a wonderful silver service as part of his welcome home

AMONG the many passengers returning from England on the S. S. Olympic was Comm. Gar. Wood and his family, together with George B. Wood, the pilot of Miss Detroit V. After the customary struggle with the custom officials, their baggage was finally released and they were welcomed to New York by MoToR BoatinG's personal representative and J. Lee Barrett, the secretary of the Detroit Gold Cup Committee. Gar. Wood was greeted and the appreciation of the Motor Boat Club of America and the American Power Boat Association, as well as of MoToR BoatinG was expressed to him.

On the arrival of the party at Detroit, a marvelous reception was arranged for the returning champion. Under the leadership of the Gold Cup Committee a parade by land and water was arranged, terminating at the Detroit Yacht Club. A wonderful silver tea service was presented to him in appreciation of his services in bringing this famous trophy back to this side of the Atlantic. Every effort will be made to keep it here and Detroit will probably be its resting place for some time to come. Plans are already under way for staging the next race for this trophy on Detroit waters. Sir Mackay Edgar will challenge for the trophy and plans to build a new boat, Maple Leaf VII. Challengers from France and Spain are also expected and already the race for 1921 is beginning to materialize.

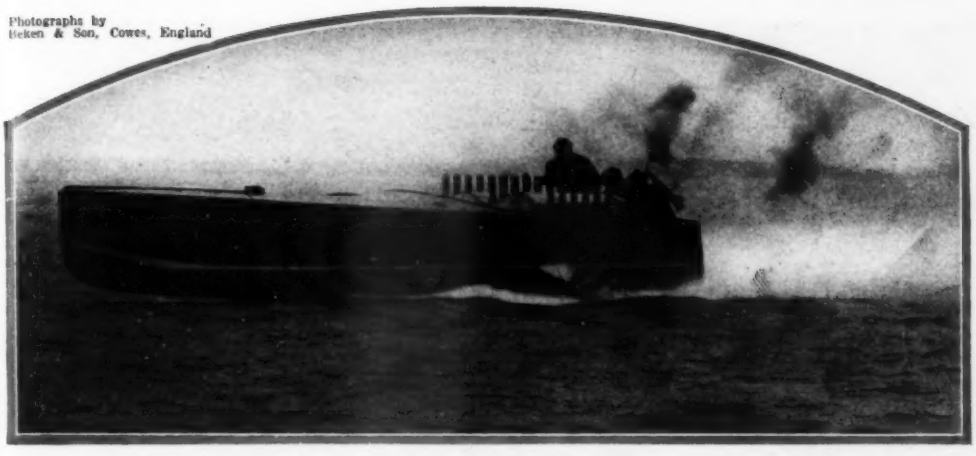
Gar. Wood told of meeting Harry Hawker, the aviator who attempted to fly across the Atlantic a year ago. After having his boat beaten decisively in the first race, he congratulated Gar. Wood and informed him that, "It does a fellow a lot of good to be well beaten and we'll be over on the other side next year trying again."

The races in England were won by the superior design of the American boats, and the unusual feature was the surprise of the Englishmen in that they were permitted to critically examine all parts and details of the American craft. The English boats were carefully guarded continuously so that no one could learn any of their secrets of construction.

The entire party which made the trip to England with Comm. Wood included Mrs. Wood and Garfield A. Wood, Jr., the two-year-old owner of Miss Detroit V, as well as Bernard Smith, Phil. Wood, Clarence Merickle, and Miss Dorothy Plotts, George Wood and Mr. and Mrs. Jay Smith.

Only a part of the fleet which turned out to greet Gar. Wood

Photographs by Beken & Son, Cowes, England



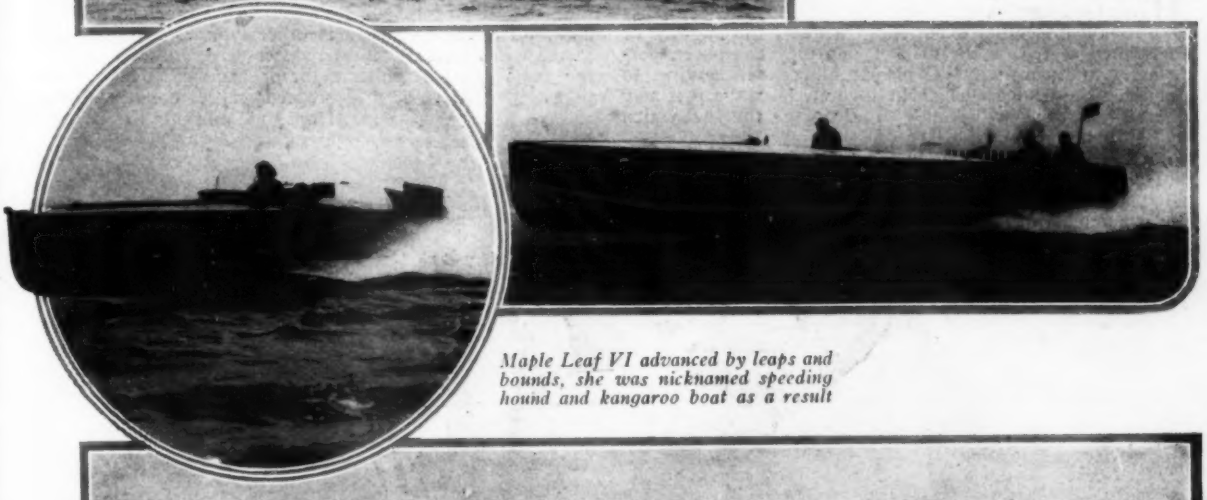
Miss America, winner of the British International Trophy, travelling wide open at the races in Osborne Bay. Her smooth, easy motion over the water proved quite a surprise to our English cousins

More Views of the Contenders for the British International Trophy

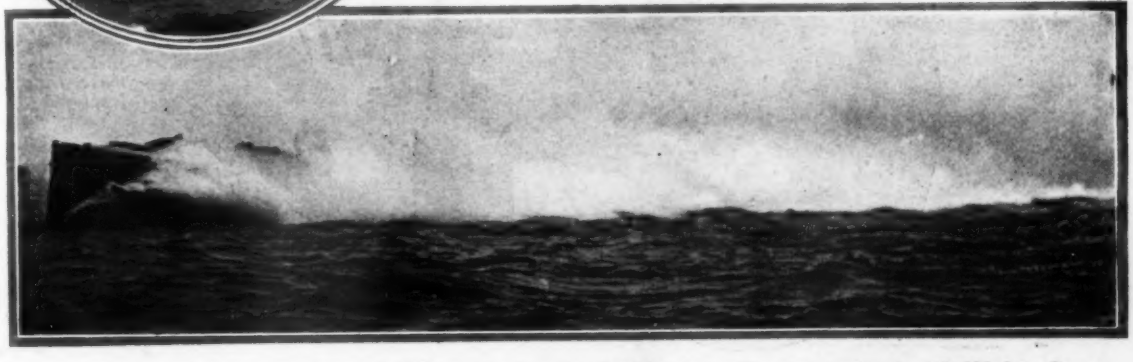
Some Belated Photographs Which Show the Contrast in the Action of the American and Foreign Boats

Maple Leaf V one of the boats on which the British pinned their hopes, carried four Sunbeam engines, totaling about 1800 h. p.

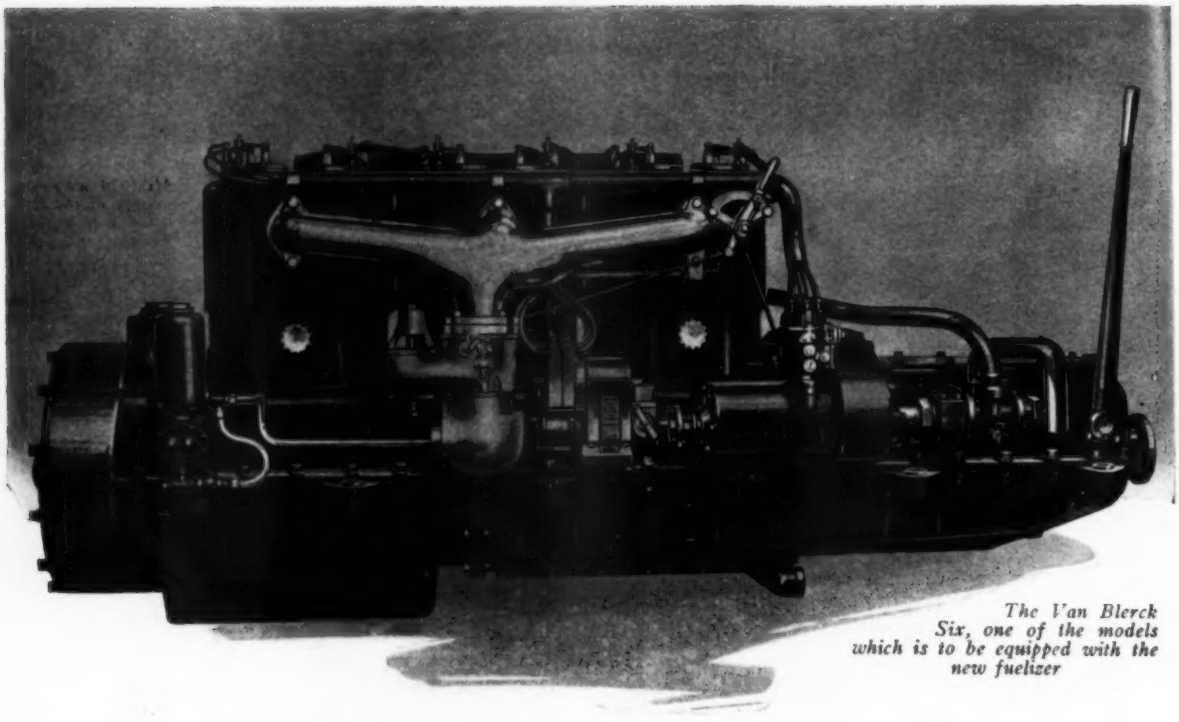
Miss Detroit V. The entry of Gar. Wood, Jr., finished second to Miss America in the final race and made nearly as good speed



Maple Leaf VI advanced by leaps and bounds, she was nicknamed speeding hound and kangaroo boat as a result



Tyreless, making an awful commotion, was held in reserve by the British team. She was equipped with 900 h.p. Green motors but was not considered fast enough



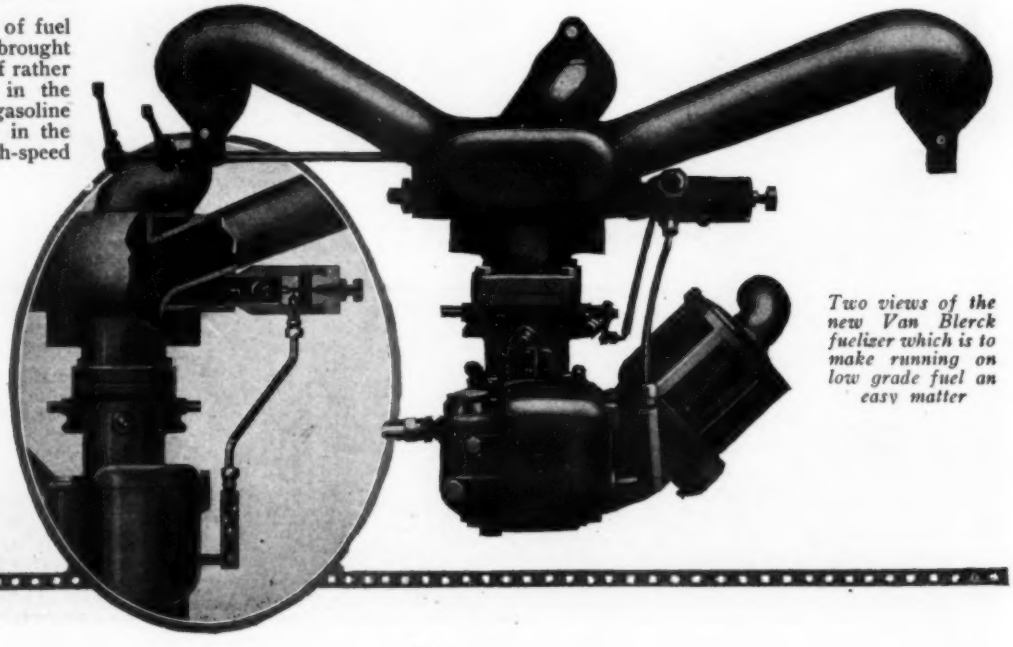
The Van Blerck Six, one of the models which is to be equipped with the new fuelizer

Van Blerck Revolutionizes Carburetion

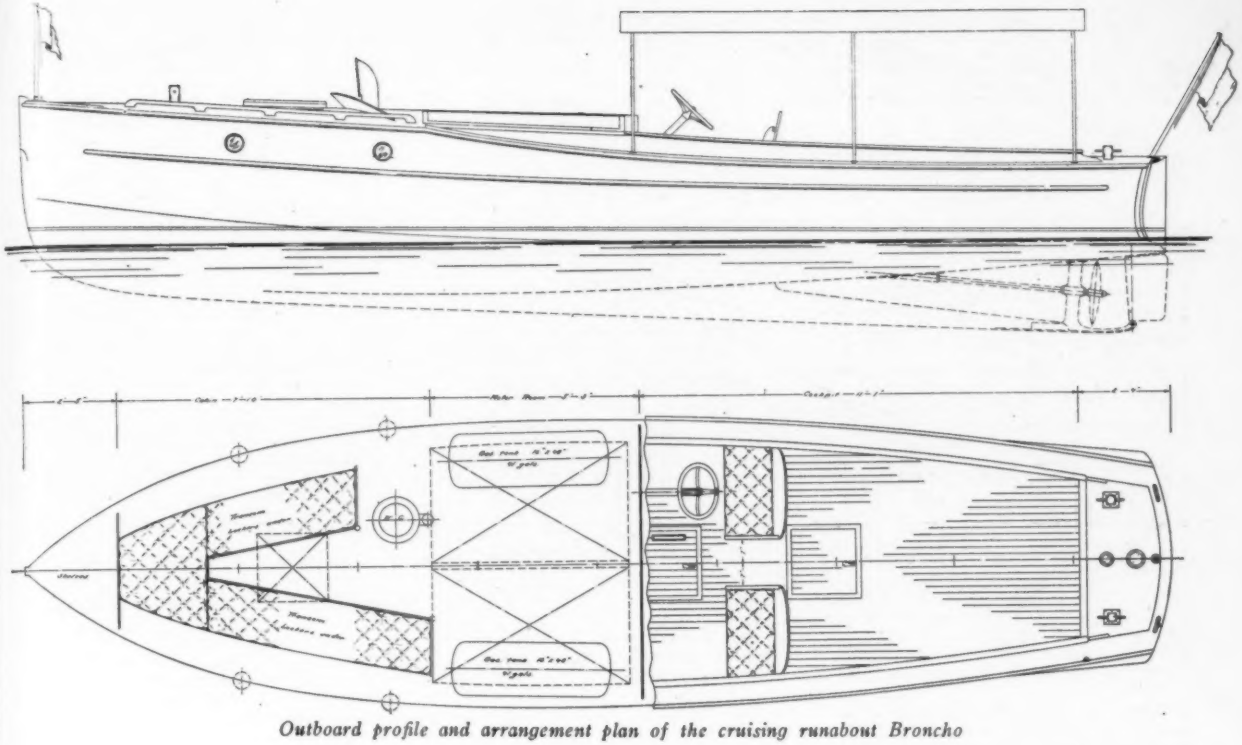
FOR a long time the engineers of the Van Blerck Motor Company have realized the necessity for overcoming the difficulties experienced with the lower grade of fuels now offered on the market, and they have been persistently and consistently working and experimenting to develop some device which will not only burn the fuel now offered but which will handle to advantage the fuel which will be obtainable in the future.

The low grade of fuel now in use has brought about a number of rather serious troubles in the operation of a gasoline motor, especially in the operation of high-speed marine engines. In this type of engine, in order to develop the greatest power at operating speed, a much larger inlet manifold is required than in other types of motors. This increased area of manifold reduces materially the speed of the gas when idling the motor or running at low revolutions. This decrease in gas speeds causes condensation on

(*Continued on page* 104)



Two views of the new Van Blerck fuelizer which is to make running on low grade fuel an easy matter



Outboard profile and arrangement plan of the cruising runabout Broncho

Broncho, a Hand 29-Foot Cruising Runabout

Designed by William H. Hand, Jr.

Exclusively for MoToR BoatinG

BRONCHO, our latest Hand V-bottom creation, is a distinct novelty in modern boat building. This boat, while not intended for real serious cruising is provided with suitable berths and other essentials, so that should one desire to stay away from his home port for a night he can make himself and a friend or two quite comfortable on board without the necessity of looking up hotel accommodations. Broncho's power plant has been selected with a view to reliable sustained speed and the model M Van Blerck motor specified will drive the boat at twenty miles per hour without undue effort.

This boat will make one of the best balanced combinations that we know of. The hull is particularly designed for fast work, and the motor will certainly do all that is expected of it. Anyone who builds a boat from these plans will certainly have a job to be proud of. The arrangement provides berths for two or three people forward under the deck. The motor is carried amidships, also inside the cabin. The gosoline tanks are distributed one each on either side of the motor and the smaller one aft under the stern deck. There is ample room under the cockpit floor for stowing miscellaneous gear and other essentials usually carried on small boats. This boat should make a wonderful outfit for its happy owner. The speed is exceptional and faster than the usual class of small runabouts. The additional features of sleeping accommodations will provide comfort for an occasional short cruise away from hotel life.

While this boat is a big undertaking for an amateur to build, it is among the possibilities. As described in some of our previous issues the construction of this boat follows accepted practice. The frames are steam bent. The keel is a substantial piece of oak, sided 2½ inches. The chine is a length of Georgia pine and white pine fillers are used to carry out the lines of the hull. The planking is applied as usual with copper rivets. The engine foundation is a pair of Georgia pine girders 1⅞ inches wide and cut to fit the model M 4 Van Blerck motor. The miscellaneous items of equipment and finish are all taken up in detail in the specifications and further comment on how to build a boat is perhaps unnecessary. Complete specifications for Broncho follow:

MR. HAND SAYS BRONCHO IS FAST

This is a husky runabout with exceptional seaworthy qualities, and with the specified motor a speed better than twenty miles can be obtained.

The large cockpit affords ample room for a party on day trips, and the arrangement forward provides accommodations for two for a week-end trip.

For fishing, gunning trips and all round boating it is believed a craft of this type fills the bill.

WM. H. HAND, Jr.

Specifications for V-Bottom Cruising Runabout Broncho

Designed by Wm. H. Hand, Jr., N. A.

Dimensions

Length, overall, 28 feet, 11 inches; beam, extreme, 7 feet, 3½ inches; draft, extreme, 2 feet, 4½ inches.

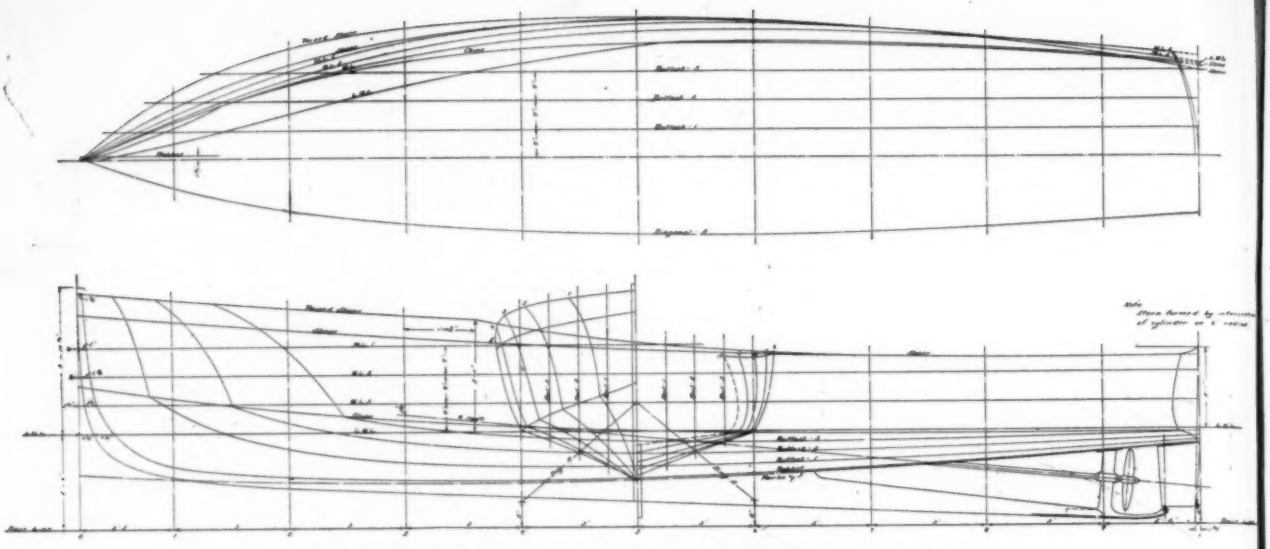
Materials: To be strictly first class in every respect, all fastenings to be secure and complete, all workmanship to be first class.

Shoe: To be of white oak, sided 2½ inches and molded as shown. Edges neatly rounded.

Filler: Of oak, 1⅛x2½ inches, set as shown aft of shoe, between garboard strakes.

Apron: Of clear straight grained tough oak or Georgia pine in single length, 2¼x5 inches, bent to form and securely fastened through floors on heels of frames. To be fastened to shoe with ⅜-inch galvanized bolts in ends and ½-inch ditto in way of engine beds. Stem and apron to be riveted with ⅜-inch bolts.

Stem: To be of natural crook oak or hackmatack, preferably the latter, sided 2½ inches and molded as indicated. To be



Complete set of lines in section and profile of the cruising runabout Broncho

rabbeted for planking and bearded to carry out all lines above L. W. L., except at head which is to be finished square as indicated. To be fitted with a ½-inch brass stem band extending 18 inches below and aft of L. W. L. and over head. Same to be neatly filed to show as narrow a face as is practical at and near L. W. L.

Stern: To be double planked white cedar, total thickness ¾-inch marine glue and rivet fastened together. Bent on 6-foot radius with indicated hackmatack center knee and 1¼-inch oak back rabbet pieces as required for planking fastenings.

Frames: All frames will be white oak and all bent to form, spaced 9 inches on centers. Between stations No. 3 and No. 6, frames will be sided 1½ inches and all frames molded ⅞ inches. On heels of wide frames will be 1½-inch sawn to form oak floors to carry motor beds, as indicated. On heels of all other frames will be 1⅛-inch sawn to form floors as shown. Note: All floors to be placed on top of frames and bolted through shoe and apron. Bolts in wide floors to be ½-inch galvanized with nuts and washers and in others, ⅜-inch galvanized bolts.

Chines: To be of clear Georgia pine, in two single lengths, apron and filler securely fastened by ⅛-inch copper rivets through frames. Rivets to extend through both chine parts.

Clamps: Main clamp of selected spruce, 1x3 inches, to extend full length of hull. Clamps fasten through frames and planking with 3/16-inch copper rivets.

Deck Beams: To be of oak sawn to form on given crown radii, sided ⅞-inch and molded 1¾ inches, spaced as indicated with ends set into clamp and securely fastened into same.

Header: At break in deck level to be of ⅞-inch white spruce molded 4 inches deep, securely fastened at ends.

Motor Beds: Of 1⅞-inch Georgia pine molded as indicated, set on top of ties or beds and bolted through same as indicated with ½-inch galvanized bolts with nuts in mortises in ties and heads flush in bed tops. Beds to be carefully fitted to bear evenly on supporting parts. There will be bearers of 1⅛-inch Georgia pine set as shown, securely bolted to motor beds and floor timbers.

Cockpit Staving: To be of ½x2½-inch matched chamfered mahogany or white pine set as shown. Staving to be fastened into coaming and into curb to support same. Cap to be of mahogany, 1 x 2-inch, rabbeted over upper edge of staving and curb with edges neatly rounded.

Planking: The hull will be single planked with white cedar to finish not less than ¾-inch in narrow strakes. The planking will be fastened through frames with suitable copper rivets, and to stem, stern, chines and apron with 1⅛-inch No. 9 brass screws spaced about 4 inches on centers. The planking will

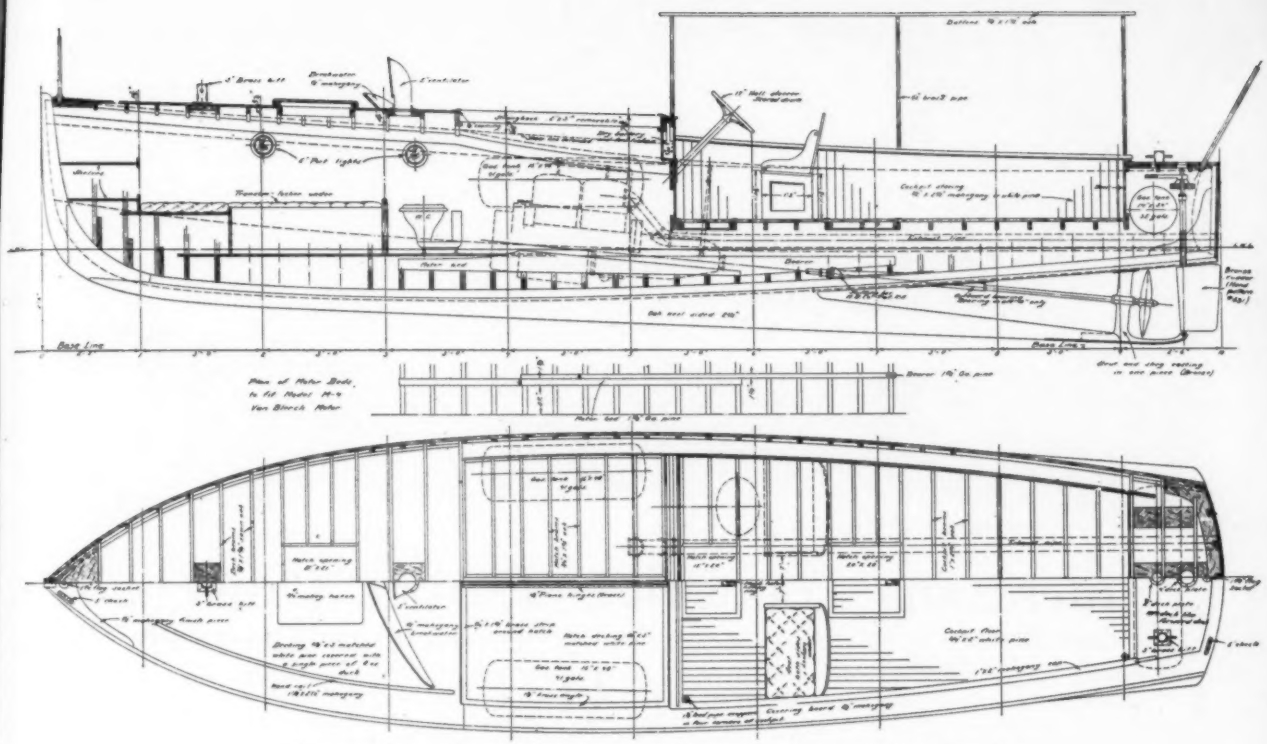
Plans and specifications of boats in this series printed previously include:

January—Edith, a 15-foot runabout
February—Jane, an 18-foot runabout
March—Katharine, a 30-foot cruiser
April—Dorothy, a 25-foot runabout
May—Zenith, a 25-foot cruiser
June—Cyclone, a 36-foot auxiliary
July—Eclipse, a 40-foot express cruiser
August—Margaret a 28-foot cruiser
September—Tornado, a 45-foot auxiliary schooner

Stations	Heights								Half Breadths							Diag.
	Raised Sheer	Sheer	But-1	But-2	But-3	Chine	Fairbody	Heel Bottom	Raised Sheer	Sheer	W.L. 1	W.L. 2	W.L. 3	L.W.L.	Chine	Rabbet	A
0	6-2-1	5-7-2				3-9-1	1-5-2										
1	5-11-5	5-4-6	3-1-4	5-8-2		3-4-6	1-3-6	1-4-2	1-8-5	1-4-2	1-1-6	1-0-3	0-10-0	0-5-0	0-11-4	0-1-2	0-9-0
2	5-8-6	5-2-0	2-1-0	2-9-2	4-7-4	3-0-6	1-2-4	1-0-5	2-10-2	2-5-2	2-3-2	2-0-6	1-11-2	1-1-7	1-10-7	"	1-4-3
3	5-6-3	4-11-4	1-8-4	2-3-0	2-8-0	2-9-5	1-2-1	0-11-0	3-4-4	3-1-1	3-0-3	2-9-6	2-7-4	1-10-5	2-6-1	"	1-8-5
4	5-2-4	4-9-2	1-7-2	2-0-1	2-4-4	2-7-4	1-2-1		3-7-1	3-5-3	3-5-3	3-3-2	3-0-7	2-5-4	2-10-1	"	1-11-0
5	4-9-6	4-7-3	1-7-1	1-11-1	2-3-1	2-6-1	1-2-6		3-7-6	3-7-0	3-7-2	3-5-5	3-3-4	2-10-5	2-11-5	"	2-0-0
6	4-6-7	4-6-0	1-7-7	1-11-3	2-2-5	2-5-3	1-4-1	Straight	3-6-6	3-6-4		3-5-7	3-3-7	3-0-1	2-11-6	"	2-0-1
7	4-5-1	4-5-1	1-9-0	2-0-1	2-2-7	2-5-1	1-6-0		3-4-4	3-4-4		3-4-2	3-3-0	2-11-4	2-11-0	"	1-11-3
8	4-4-5	4-4-5	Straight			2-5-0	1-8-2		3-0-7	3-0-7		3-1-2	3-1-0	2-10-1	2-9-4	"	1-9-7
9	4-4-4	4-4-4		"		2-5-0	1-11-1	0-1-5	2-8-0	2-8-0		2-9-3	2-10-2	2-7-5	2-7-1	"	1-7-6
10	4-4-6	4-4-6		"		2-5-1	2-1-6		2-3-0	2-3-0		2-5-3	2-7-4	2-4-7	2-4-3	"	1-6-0

Note - All dimensions given in feet, inches and eights to the outside of planking.
Heights given above Base Line. Water lines spaced 9". Diagonals and Stations per Line Plan.
Cheek rabbet by fairbody.

Complete table of offsets for Broncho



Construction profile and plan for Hand V-bottom cruising runabout Broncho

be finished in paint. All screw and rivet heads will be let in and plugged with bungs. Seams to be caulked with cotton, run with paint and payed with white lead putty.

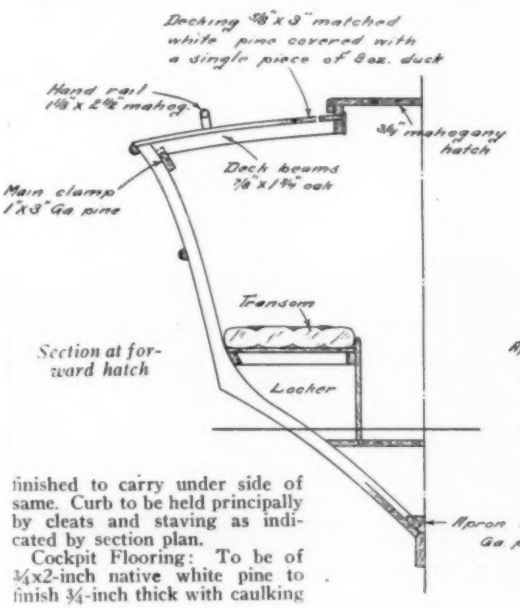
Decking: To be of ⅝-inch matched cedar in strakes about 3 inches wide, layed fore and aft in the usual manner and fastened into deck beams with 1½-inch galvanized boat nails with heads let in. Deck to be planed smooth, heads of nails covered with wax and entire deck covered with a single piece of heavy cotton sheeting on each deck, layed in shellac or marine glue and ironed down into place with hot flat irons. Edges hauled down over outer edge of deck and neatly tacked where tacks will be covered by ribband when in place. Side decking to sweep up into raised deck as indicated. Brass strip over angle 1½x1/16-inch.

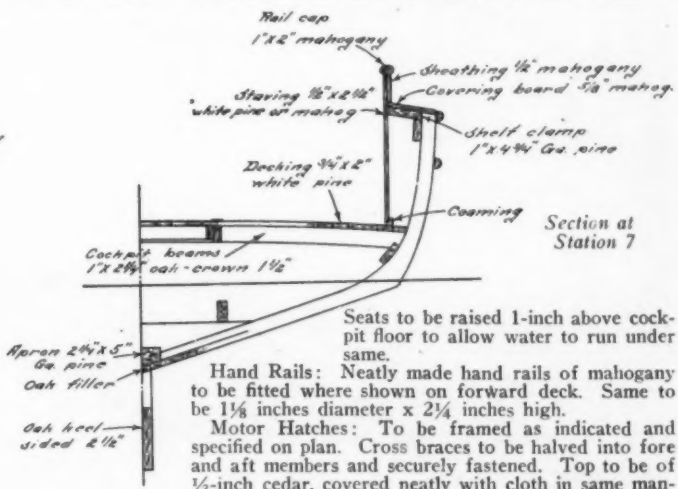
Cockpit Curb: To be of ½-inch mahogany, fitted as indicated and fastened in place with No. 8 brass screws. Each side to be in single piece with fore end neatly and securely fastened to header as indicated. Edges in way of motor hatches to be finished to carry under side of same. Curb to be held principally by cleats and staving as indicated by section plan.

Cockpit Flooring: To be of ¾x2-inch native white pine to finish ¾-inch thick with caulking seams. To be layed over oak pit beams, 1x2¼ inches, spaced as shown. To be fastened with 1½-inch galvanized boat nails, heads countersunk and bunged. Seams caulked and payed like planking. Flush type hatch over stuffing-box to match flooring with 1½x1/16-inch brass round edges and flush galvanized ring bolt in center for raising. Hatch over reverse gear to match flooring. Scuppers in four corners of 1¼-inch lead pipe with leather valve outside. Neatly flanged, set in white lead and tacked in place in the usual manner.

Bulkhead: Control bulkhead to be of matched chamfered mahogany, ½x2½-inch, set vertically in the usual manner. Fastened as is staving. Aft bulkhead the same.

Seats: There will be seats in forward end of cockpit only. They will be of the divided type, as shown by drawing, with hinged tops of ¾-inch mahogany and paneled below as shown. Permanent mahogany backboards with neat solid arms of mahogany on inboard ends, and suitable lips to retain cushions.


Decking ⅝"x3" matched white pine covered with a single piece of 8oz. duck
Hand rail 1⅛"x2½" mahog.
¾" mahogany hatch
Deck beams ⅞"x1¾" oak
Main clamp 1"x3" Ga. pine
Transom
Section at forward hatch
Locker
Apron 2¼"x5" Ga. pine


Rail cap 1"x2" mahogany
Sheathing ½" mahogany
Covering board ⅝" mahog.
Staving ⅝"x2½" white pine or mahog.
Shelf clamp 1"x4¾" Ga. pine
Decking ¾"x2" white pine
Coaming
Section at Station 7
Cockpit beams 1"x2¾" oak - crown 1½"
Apron 2¼"x5" Ga. pine
Oak filler
Oak keel sided 2½"

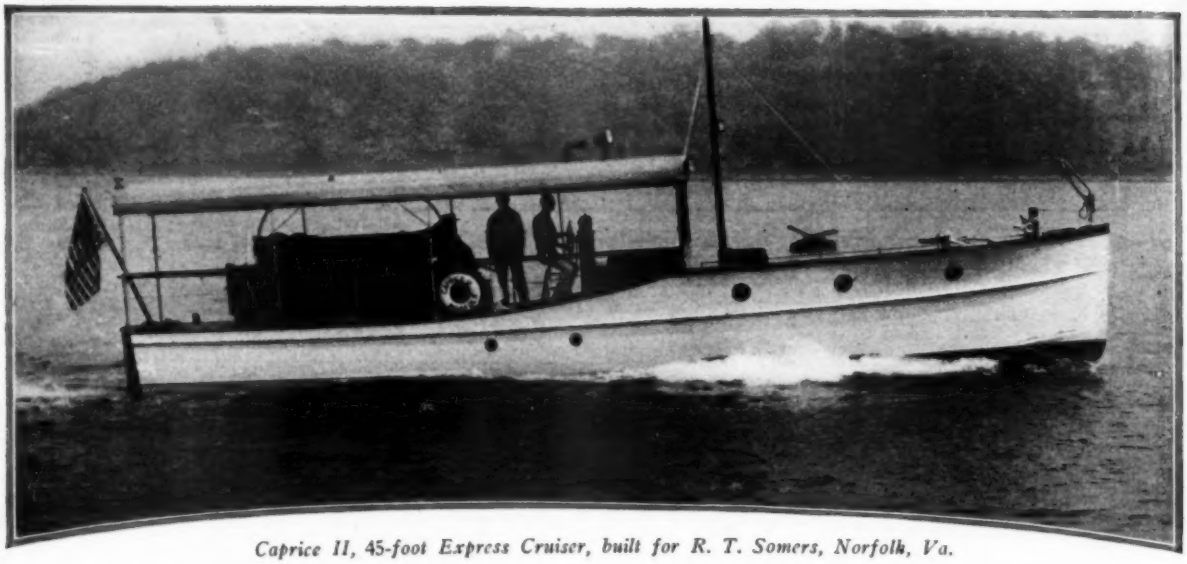
Seats to be raised 1-inch above cockpit floor to allow water to run under same.

Hand Rails: Neatly made hand rails of mahogany to be fitted where shown on forward deck. Same to be 1⅛ inches diameter x 2¼ inches high.

Motor Hatches: To be framed as indicated and specified on plan. Cross braces to be halved into fore and aft members and securely fastened. Top to be of ½-inch cedar, covered neatly with cloth in same manner as is deck. Fore and aft edges to be neatly covered by a flat brass strip, 1½-inch wide as indicated to cover seam. Sides to be neatly fitted with 1½-inch angle brass to cover lap. Oak cleats as indicated, and provided with suitable gutters to carry leak water, to be fitted as shown. To be hung on brass piano hinges.

(*Continued on page 92*)

Photograph by E. Levick



Caprice II, 45-foot Express Cruiser, built for R. T. Somers, Norfolk, Va.

Increasing Popularity of Stock Cruisers

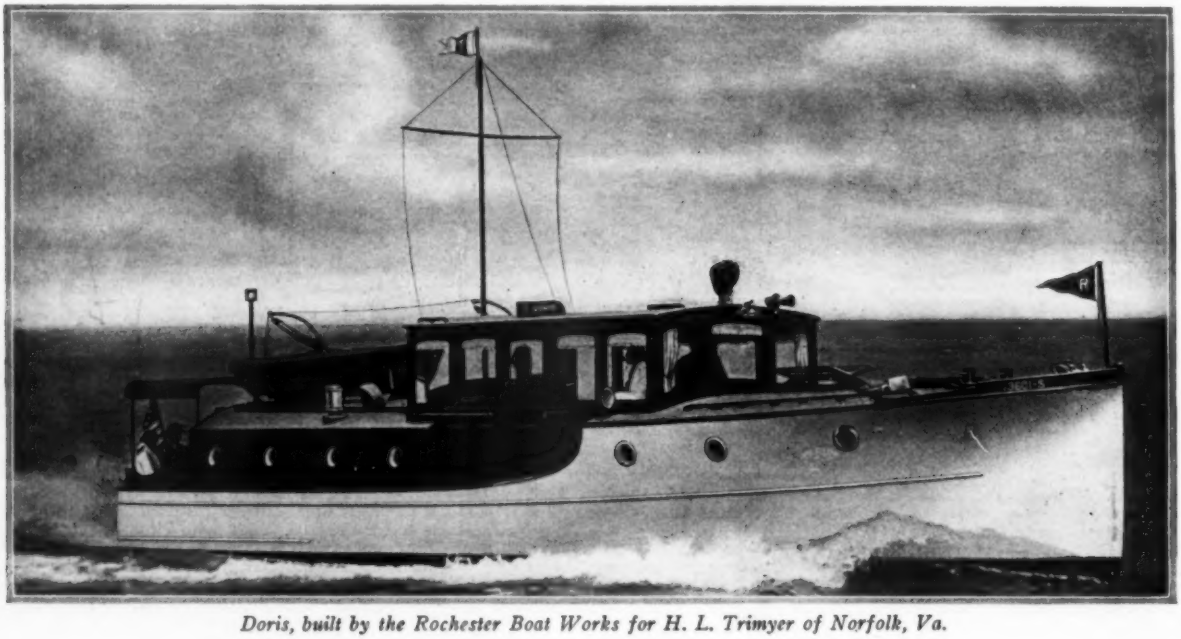
Some Recent Examples of Attractive Cruisers Completed by New York Builders

CAPRICE II was built in the yards of the Richardson Boat Company, North Tonawanda, New York, from designs by William H. Hand, Jr. She is of the express cruiser type and as is customary with all Hand designs, is provided with a V-bottom. She is 45 feet long and 10 feet 6 inches wide. Caprice II is equipped with a model F. M. Sterling motor of six cylinders, which can drive her at better than 16 m.p.h.

The arrangement of this boat follows conventional lines and the cabin forward has ample living accommodations. The motor is located under the bridge deck amidships where the fuel tanks and storage batteries are also taken care of. The after cabin provides the owner with very comfortable quarters, in which he can feel thoroughly at home. The furnishings throughout are of the best and the finish is in white enamel with mahogany trim. All upholstering has been done in tapestry. The berths being provided with suitable spring boxes on which the cushions are carried.

DORIS, the new Rochester cruiser just completed for H. L. Trimyer of Norfolk, Va., has safely arrived at her home port. The journey from Rochester was made via New York State Barge Canal, Hudson River, and the inside route to Norfolk. Reports state that the trip was wonderfully interesting and a pleasure, due to the satisfactory handling of the boat and the excellent living accommodations provided. The motive power is a six-cylinder, model F. M. Sterling motor, which is able to drive a boat at 15 m.p.h at 900 revolutions.

The boat is arranged with a double cabin, the forward one of which is provided with two lower berths, the backs of which can be swung up to accommodate two additional persons. The enclosed bridge is very spacious and can be entirely opened up in warm weather by dropping the windows into the side pockets. In case of inclement weather, this bridge can be made as snug as desired. The engine room under the bridge deck is very roomy, allowing ample access to all parts of the motor.



Doris, built by the Rochester Boat Works for H. L. Trimyer of Norfolk, Va.

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the December Prize Contest

1. Describe and give drawings of any practical device with which the towing qualities of a flat-bottom rowboat or dink may be improved.

Suggested by H. A. M., Philadelphia, Pa.

2. How would you rig a "sea anchor" and what means would you employ to keep a boat disabled or unmanageable out of the trough of the sea and lessen her lee drift?

Suggested by C. A. R., Roselle Park, N. J.

3. Give detailed information on the method of determining the value of a used motor including a depreciation chart and show the cost of putting in good mechanical condition.

Suggested by W. B. M., Newburgh, N. Y.

Rules for the Prize Contest

ANSWERS to the above questions for the December issue, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (a) in our hands on or before October 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before October 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed $25, or a credit of $25 on any article which sells for more than that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG of which the advertised price does not exceed $5, or a credit of $5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

The Best All-Round Craft for the Amateur

A Wide Variety of Suggested Types from Which the Amateur Can Select the Particular Boat Which Suits His Needs the Best

Answers to the Following Question Published in the July Issue

"What type of small motor boat would you advise an amateur to purchase for the use of himself and his family as an all-round pleasure craft?"

Selection from Existing Types Necessary

(The Prize-Winning Answer)

WHEN it comes to putting down in India ink the exact boat for the amateur to purchase for use as a general all-around family runabout you might as well ask MoToR BoatinG to run the Ideal Runabout Contest all over again. This subject amateur at once becomes that hypothetical individual we call the average man. Now if we had but one isolated and known body of water for his use we might tell him just the boat to buy and be nearly correct in our advice. But, we may have in mind, there are many, many different kinds of water, as many as there are different kinds of amateurs. Consider how varied were the types of runabouts published in the Ideal Runabout Contest, and we saw but a handful of the dozens submitted. Surely no one particular design can be decided upon as final. Consequently it is perhaps fitting to advise this amateur with some regard for the conditions under which he intends using the boat.

Now you will find that in nine cases out of ten the best boat for any particular body of water is the boat which has been evolved and developed on the spot. It is therefore soundest logic to advise the amateur to buy a boat built by a reliable builder following the established practice in his own locality. Better still, he should consult a naval architect who, for a nominal consideration, will give the boat best suited to his needs and especially adapted to the conditions encountered.

The accompanying sketches show various types all suited admirably to the waters where they are used but which could not be interchanged successfully. If this amateur lives on a small inland lake with sheltered waters and if he likes a little speed, we could not go amiss in suggesting the little Speedabout. If he is down along the New England coast we vote for the New England Dory, you can't beat them for those waters. If along the lower Atlantic Coast, the Seabright Dory was born to his needs. Or if he wants able and with a touch of speed, we advise the Offshore V-Bottom as developed by Hand. For the man on the shallow creek or river there is no choice; the flat-bottomed tunnel stern is inevitable, and they are dandy little boats. However, the boat that comes nearest filling the entire bill is the orthodox round-bottomed boat as illustrated. For seaworthiness, safety and comfort, there are none better, and for all nominal speeds no type is more easily propelled.

The question of arrangement, etc., is a mere detail. It can't differ much in a small boat. The main issue is the type of hull, and if the amateur bases his selection on the foregoing types just register another enthusiast for the sport.

P. L. R., New Rochelle, N. Y.

A 25-Foot Family Pleasure Boat

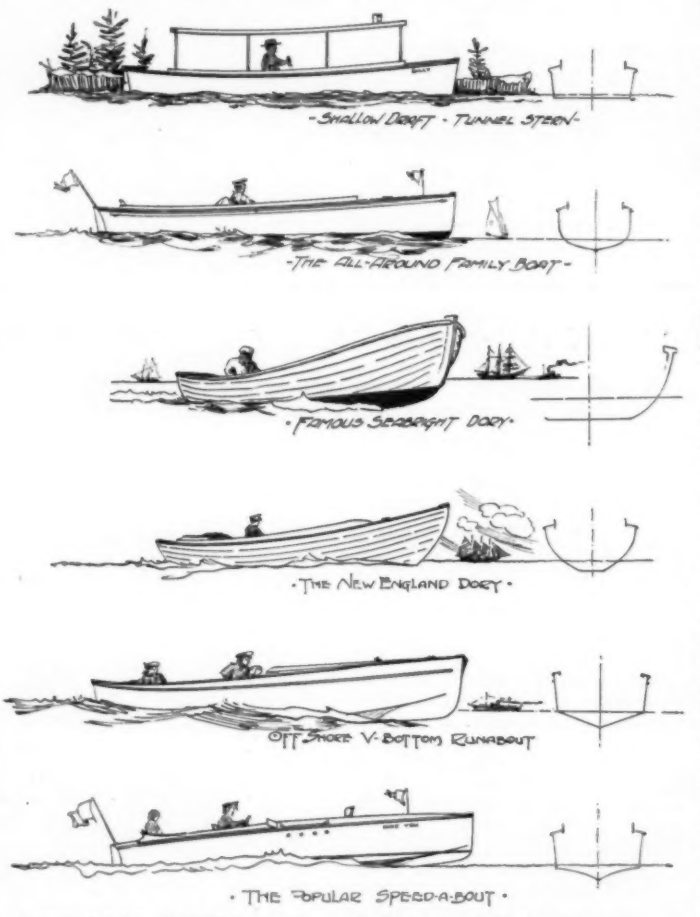
THE type of small motor boat suited to the amateur and his family would depend more or less upon the size, age and seamanship qualifications of the amateur's family as well as the character of the water upon which the boat is to be used. The sketches show an all-around type of small cabin cruiser suited to semi-protected water but capable of holding its own upon occasional trips into the open; it is of good beam with cockpit and cabin room about evenly divided. Twenty-five feet was chosen as about the most economical size for family use; anything larger would be apt to cause a considerable increase in first cost and upkeep and be more difficult to handle when hauling-out time comes—when, as we all know, the owner has to do most of the work himself.

To obtain the maximum waterline length, the stem and stern are practically plumb; the transom stern allows good cockpit space and clean underwater lines. The underwater body is fairly deep for seaworthiness, with a straight keel and substantial skeg to protect the rudder and propeller. The keel-less and skeg-less type may be all right for speed but is an abomination when it comes to upkeep and hauling out for painting and repairs. A heavy fender along the sheer is of great advantage when lying alongside the dock and a pair of rubbing fenders near the waterline are an addition well worth while. These, in combination with a painted waterline three or four inches above the actual waterline, to protect the topsides from dirt and oil, will save

the owner much extra work in keeping the hull in presentable condition.

The trunk cabin type with square front has been chosen. Though the raised deck cabin has some advantages, such as maximum interior capacity, it spoils a boat's appearance, is productive of much scraping, bumping, glass-breaking and profanity when running up to or lying at the wharf and it is difficult to handle the ground tackle or fishing lines from such a deck. The trunk cabin, on the other hand, allows good deck room forward and the passengers can enjoy fishing from the side decks or may sit upon the trunk when under way, handrails being provided on each side. Furthermore, the ventilation of the cabin is better and an auxiliary wheel may be installed forward—a great comfort in wet weather. The writer has had considerable experience with both types and has had enough of the raised deck. No attempt must be made to obtain full headroom in the cabin; in a boat of this size such a procedure would be extremely dangerous and would spoil the appearance of the craft.

To allow more cockpit room, the after deck is short, not much over a foot in length. The rudder stock is brought up through and an emergency tiller kept at hand. The main cockpit is watertight and self-bailing; the floor is as high as possible above the waterline and valves or scoops are installed at the scupper outlets to help remove the water. Six and a half feet was purposely chosen as the cockpit length, as this gives room for two people to spread their blankets and sleep while cruising. Another might be able to accommodate himself upon the bridge deck. Under this bridge is ample room for a one- or two-cylinder medium or slow speed four-cycle motor. A four-cylinder might be satisfactory but would mean just twice as many cylinders, valves and bearings to care for. Needless to say, the engine must be of the regular marine type and not an automobile motor. It would be a good plan to make the entire bridge deck, as well as the after bulkhead, removable, for when repairs have to be made at sea one can never have too much elbow room. The fuel tanks are not shown; this would depend upon the distribution of weights in the hull and perhaps upon the owner's wishes as well.



Assorted types of small boats recommended by P. L. R. for the beginner. Each the best type for a particular purpose

As to the cabin layout: in a small cruiser like this, nothing very elaborate can be attempted. A. W. C. will be a necessity and probably space can be found for it in the after corner of the cabin opposite the companionway; it should be enclosed if possible, but with removable door and bulkhead. The galley will be cramped in any event, but the best location for it will be in the corner opposite the toilet, beside the companion slide, which will afford good ventilation while cooking. This leaves six and a half feet in the cabin for two berths, though these could be extended under the forward deck. It would seem best to place a bulkhead with door at the forward end of the cabin and use the space under the deck for anchor lines, or possibly for the fuel tank. An extra steering wheel is located here and this can be of the detachable variety if desired. The seven port lights are of good size and by all means should be hinged so as to be opened for ventilation and also for throwing trash overboard.

Samson posts, forward and aft, made of oak three or four inches square and of fair height and extending through to the keel, will prove of inestimable value in mooring and anchoring, as they hold any size lines and never loosen or pull out.

H. H. P., Oakland, Cal.

V-Bottom Type Most Suitable

THE question of what type of boat is most desirable for an amateur to purchase for the use of himself and his family for an all-around pleasure offers a rather broad mark. It depends on where he intends to use the boat, whether he wishes to cruise, day sail or simply go for an occasional spin. It also depends on how fast he wants to travel and how much he wants to spend.

However, the amateur's family craft must have certain qualifications, the lack of any one of which will detract from its general usefulness.

First. It must be safe. Presumably the amateur will now and then submit his boat to conditions that require a liberal margin of safety. The hull, therefore, must be strongly built, of liberal beam and freeboard, and seaworthy.

Second. It should have an ample cockpit. It may be expected that such a boat will be used largely for day sailing, therefore it must have comfortable and shady seating accommodations for the party.

Third. There should be a comfortable, if not large cabin. In case of inclement weather encountered in day sailing or to accommodate a week-end cruising party, a small cabin is a necessity. This cabin should be equipped with a small stove for cooking. It should also contain a toilet.

Fourth. The hull must be easily pushed. In these days of expensive fuel it behooves any prospective buyer to look for the lines in a boat's hull that will render him the most miles per gallon of fuel.

The power plant must be reliable, accessible, and quiet. The man who takes his family for a short trip does not want to bother with repairs, but in case anything does go wrong he wants to be able to get at it as quickly and as easily as possible. No more do the party want to be obliged to raise their voices above the din of a noisy engine or an open exhaust.

To sum up these requirements into one unit, the arguments would seem to be in favor of the so-called day-

(*Continued on page 72*)

How to Raise Gasoline From a Low Tank

Devices Adapted to Supply Fuel to a Motor in the Case Where the Gasoline Tank is Located Below the Carbureter

Answers to the Following Question Published in the July Issue

"What arrangement have you found most satisfactory to supply gasoline to the engine from the tank which is lower than the carbureter?"

Gravity Auxiliary Feed Fuel Tank

(The Prize-Winning Answer)

PROVIDED a good reliable gasoline pump can be obtained, the system suggested in the sketch furnishes a satisfactory solution of the fuel-feed problem where the main tank is below the carbureter. No attempt is made to compare this system with the vacuum feed systems upon the market; it is merely an outline to be followed by the boat owner desirous of building and installing his own equipment.

Some form of centrifugal or rotary pump, made especially for handling gasoline, should be used; the lower the speed at which it normally operates, the better. In order to avoid the necessity of raising the fuel to the pump by suction, it should be installed below the tank outlet so that the gasoline may run into it by gravity. The drive must be positive, by gears or chain, from the main, cam or pump shaft of the engine and a drip pan of ample capacity is set under the pump as a safeguard.

A small auxiliary fuel tank is installed above the carbureter, to which the fuel is fed by gravity; the capacity need be but a few gallons. An inlet pipe from the pump is run to the tank and an outlet pipe to the carbureter; then an overflow pipe, of larger diameter than the others, is run back to the tank, the outlet for the overflow being near the top of the auxiliary tank. The outlet of the main tank connects to the fuel pump inlet.

The pump being driven positively from the engine, the amount of fuel pumped will depend on the engine speed, so that the auxiliary tank and overflow will not be overloaded provided the pump is of the proper capacity. When the engine stops, the flow of fuel to the auxiliary tank will stop, though there should be sufficient remaining in this tank to start up again without the necessity of priming.

A valve should be placed at the main tank outlet, at the pump intake, at the auxiliary tank outlet and a drainage valve at the carbureter, but under no circumstances should any valve be placed in the overflow line or the line from the pump to the auxiliary tank. The vent is preferably placed in the top of the main tank, in which case the upper tank requires none.

The particular advantage of this system is that the fuel tanks may be disposed of wherever convenient without regard to their location with respect to the carbureter, a supply of fuel is available at a constant pressure.

H. H. P., Oakland, Cal.

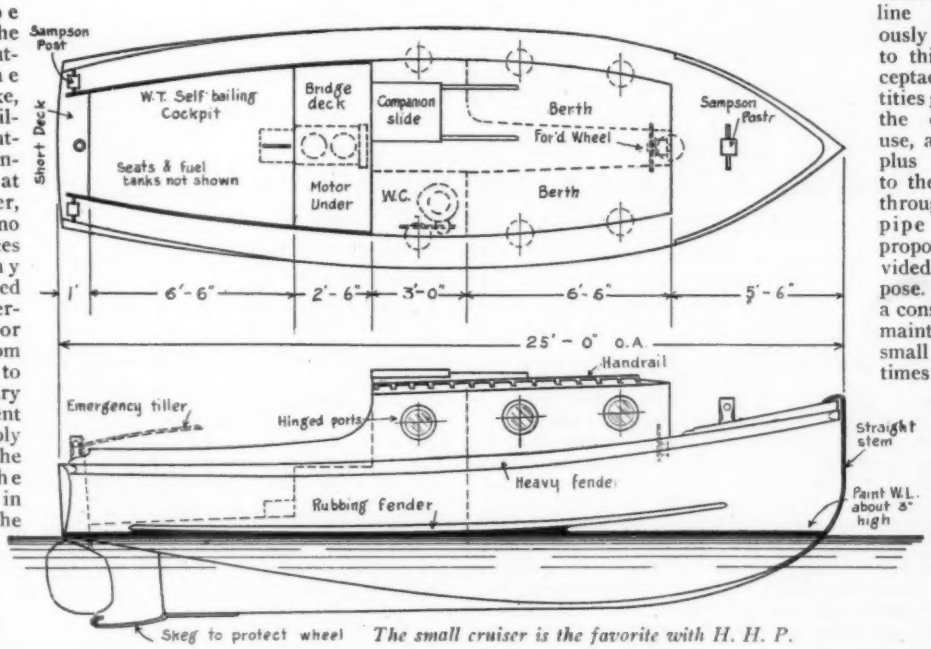
Prefers the Vacuum Tank

ONE of the best and easiest methods of using gasoline from a tank lower than the carbureter is to install one of the vacuum devices such as are used on automobiles for this purpose. It is reliable and may be depended on to furnish a constant supply of gasoline unless the carbureter is a considerable distance above the tank and therefore the required lift too great, a condition that would hardly occur on the average motor boat.

This vacuum gasoline system requires no attention after being once installed; it consists principally of a small tank or reservoir connected by copper tubing to the gasoline tank and engine manifold and also to the carbureter. Provision is also made for filtering, or taking out dirt and water before the gasoline is transferred to the bowl of the carbureter. In some respects a low tank fitted with this vacuum feed would be more safe than the usual gravity feed because there would not be the ever-present possibility of emptying the entire contents of the tank into the bilge, should the gasoline stopcock be left open after a trip. Where the gravity feed is used the carbureter float valve is relied upon entirely to prevent gasoline from flowing from the tank except as required by the engine. This valve can usually be depended on, particularly when the motor is running, but when standing idle, particles of dirt under the seat or a defective valve may allow the gasoline to run out. This cannot occur to any great extent with the vacuum system because when the motor is stopped the vacuum that lifts the gasoline to the small tank ceases.

Another plan where the lift would be too great for the vacuum system or where it might be preferred for other reasons is to use a small pump driven from the engine, delivering gasoline from the main tank to a small tank or reservoir located above the main supply tank and also the carbureter. Gasoline is continuously pumped into this small receptacle in quantities greater than the engine can use, and the surplus is returned to the main tank through a copper pipe of ample proportions provided for the purpose. In this way a constant level is maintained in the small tank at all times and from this supply the gasoline is fed by gravity to the carbureter, being controlled by the usual float valve.

An arrangement of this kind has been used on a great many stationary engines because insurance companies have been inclined to consider the float-controlled valve of the carbureter and gravity feed an additional risk and also



The small cruiser is the favorite with H. H. P.

because below the base of the engine was in many outfits a convenient place for a supply of fuel. Often the float valve of the carbureter was dispensed with entirely, the overflow pipe being depended on to maintain a constant level in the carbureter bowl, slightly below the nozzle.

For marine use a small overflow tank elevated above main tank and carbureter, and the regular carbureter with float valve would be more satisfactory. With this system the pump is the only part that will require care or attention. This is usually of the plunger type, which is very reliable, but of course a rotary or other type of pump could be used.

C. H. C., Saginaw, Mich.

Supply Fuel to the Carbureter

THE usual method of supplying fuel to the carbureter to marine installations is to elevate the tank sufficiently above the carbureter into which the fuel flows by gravity. The installation is practical in every sense, free from trouble even with a duty tank provided that there is a strainer at the outlet, requires no attention other than filling the tank, and is easily cleaned should a stoppage occur. Speed-boats or cruisers, requiring ballast without unnecessary weight or not having sufficient space below deck to place a tank and obtain gravity feed, must resort to other means of supplying the fuel to the vaporizing device.

There are two methods commonly used for supplying the fuel from a tank which is lower than the carbureter, the vacuum system and the pressure system. In the vacuum system, gasoline is raised from the main tank to the vacuum tank by the suction of the motor on the intake stroke, and thence to the carbureter by gravity. The fuel level in the vacuum tank is maintained by an automatic float valve, which closes off the suction when the fuel reaches its level.

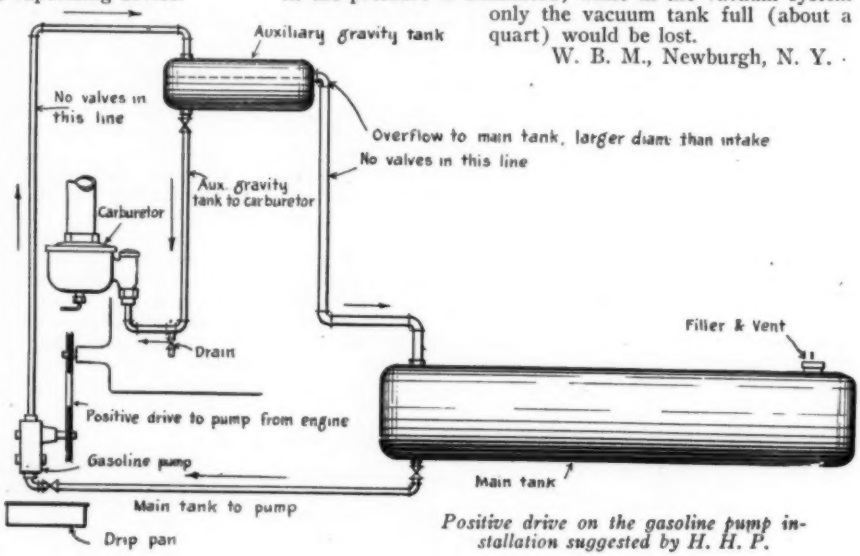
In the pressure-feed system, the fuel tank is closed air tight and the fuel forced to the carbureter by air pressure. This system is not fully automatic. Before starting up, the pressure of from two to four pounds must be supplied by a hand pump, but when the motor is running the pressure is automatically maintained by means of a small pump.

It is hard to decide which system is most satisfactory. Common automobile practice is to use the vacuum system although some of the best and highest priced cars are equipped with the pressure system. Both have their peculiarities in operation and neither system is entirely free from trouble.

A dirty vacuum tank or leak in the vacuum line or any of the connections will seriously interfere with the fuel supply, but in this system the fuel flows to the carbureter by gravity, which is a decided advantage in some types of carbureters.

In the pressure-feed system all piping and connections must be absolutely air tight, as a small leak would prevent a constant pressure on the fuel line which in time would lower the fuel level in the carbureter. The carbureter float and float valve must always be in good condition in order to close properly against the pressure. In installing this system, readjustment of float valve is invariably necessary to preserve the designed fuel level. The gasoline in the tank and piping being under pressure, is more apt to leak and in starting, it is always necessary to pump up a pressure in order to obtain a sufficient fuel supply at the carbureter. Should the float valve fail to close properly there is nothing to prevent the fuel from leaking through the carbureter until the pressure is exhausted; while in the vacuum system only the vacuum tank full (about a quart) would be lost.

W. B. M., Newburgh, N. Y.



Positive drive on the gasoline pump installation suggested by H. H. P.

Keeping a Motor in Service With a Hot Bearing

Practical Methods Suggested to Permit Motor to Continue Operation When Bearing is Overheated

Answers to the Following Question Published in the July Issue

* *"How would you keep a hot bearing in service without further damage and what would you do to prevent the recurrence of the heating?"*

Keeping a Hot Bearing in Service

(The Prize-Winning Answer)

UNDER the ordinary operating conditions any of the stationary bearings on a motor should not heat up to a temperature above which the hand may be applied without discomfort from the heat. You can not expect any bearing upon which there is a load to run cold. The cooling water and radiation carry away a large percentage of the heat from the cylinders, but after an hour or two of running the heat has worked down so that the whole motor is warm. This is as it should be and the bearings may be expected to be warmer than the surrounding metal due to friction. Efficient lubrication greatly reduces friction but it cannot be entirely eliminated. Were it possible to eliminate friction perpetual motion would have been attained long ago.

Every bearing absorbs through friction a certain amount of power which is in proportion to the load on the bearing; and the bearing is designed according to the pressure per square inch of bearing surface and the revolutions per minute. The power absorbed in the bearing is used up in overcoming friction and power is heat. Therefore any bearing gets warm in operation unless externally cooled.

A stationary bearing on a motor is too hot when you can not touch it without jerking the hand away. The movable bearings are designed to operate at a higher temperature and are not as easily inspected. No bearing will burn out at a temperature which can be touched with a wet cloth without sissing, although this is not a desirable temperature for babbit. Bronze will stand up at a temperature considerably higher.

A hot bearing is the direct result of undue friction. Lack of proper lubrication is the most common cause; or the bearing may be so tight that there is not a proper space for lubricant and the oil film breaks down, allowing the metals to come in contact with each other. Misalignment, the result of poor workmanship or accident, may also cause undue

heat in a bearing. Bearings of poor material or design, or bearings so badly worn that their surface is rough and uneven cannot be expected to run cool any more than an over-loaded bearing.

When practical, the best treatment for a hot bearing is to shut down and let it cool off. Before starting up investigate the cause and make temporary repairs at least. Where a shut down is impractical, the surest and also the easiest method of keeping a hot bearing in service is to introduce through the lubricating oil to that bearing a small amount of Timesaver Bearing Grinding Compound by mixing it with the oil. The compound will quickly cut down the uneven bearing surface, thus restoring its satisfactory operation. Tight bearings and even bearings overheated from misalignment readily respond to the same treatment.

The compound is readily soluble in oil and can do no harm to any part of the motor. It will cut for a minute possibly, but by the end of that time its nature is destroyed, the compound being dissolved in an excess of oil. Only a small portion of the bearing material is removed and it will not cut iron or steel.

The external bearings of a motor may be cooled and kept cool by running a small stream of cold water over them. However, the water should not be ice cold if the bearing is very hot, although in severe cases ice may be applied directly to the bearing housing by gradually working down to that temperature.

Ice or very cold water applied locally to an overheated motor or parts would cause unequal contraction of the metal which is very apt to warp or crack the casting. When using water on a bearing care is necessary that none gets on the bearing surfaces. Water is a lubricant to a certain extent but is not sufficient for a bearing of this nature. Oil will float on water and water is much thinner than oil, which would allow the oil to float out and the bearing surfaces to come together.

Internal or movable bearings cannot be cooled with water. A liberal flooding with cold oil of good body is about the only available emergency method except the compound. A little finely ground graphite in a hot bearing is often beneficial, especially if the bearing is badly worn.

Misalignment should be corrected immediately upon reaching port; and any stoppage in the oiling system requires immediate attention to save the bearing. A bearing worn beyond restoration, as explained in the July issue of MoToR BoatinG, should be removed at once. Bearings which cool down after treating them with the grinding compound require no further attention as the binding has been relieved and the bearing surface restored.

Good oil and grease are the cheapest and best mechanics you can hire. The "oil is oil" theory is all wrong and you will be well repaid for the extra cost in purchasing a standard brand of lubricant in the manufacturer's original container, which is usually sealed. The grade used should be according to the motor manufacturer's recommendation, and every can of oil should not be of a different brand.

W. B. M., Newburgh, N. Y.

Proper Lubrication is Essential

THERE are several reasons why a bearing may run hot, and an effort should be made to determine the cause of the trouble, if possible, before applying the remedy.

Some bearings run hot because of faulty adjustment; either too tight or too loose. With a bearing that is too tight the remedy is to slightly slacken the bolts holding down the cap or if this cannot be done use lighter oil or mix kerosene with what you are using. I remember one case where a two-cycle engine had been refitted with new main bearings, and these bearings ran dangerously hot day after day while the owner worried and continually screwed down the grease cups with which engines of this type are usually provided. The bearings would become so hot that the heavy grease would run out like water and then the owner would scout around for some extra heavy kind that would stand the heat and stay in. This continued some time until finally one day he exhausted his supply of grease when several miles from home. Well, there wasn't much to do but run without grease and his patience being nearly exhausted anyway, he decided to run and let things melt if necessary. After a half hour he was greatly surprised to find the bearings running much cooler and by the time port was reached they were running normal. Then the cause of his trouble dawned on him and he used light grease sparingly and had no further trouble.

A loose bearing, particularly on a connecting rod, or sometimes on the flywheel end of a main shaft, may run hot because there is a tendency to pound. Such a bearing should be adjusted by taking out shims and tightening down the caps, or if a solid bearing, providing a new bushing. Undoubtedly the principal and most frequent cause of hot bearings is insufficient lubrication either because enough oil is not used or an oil of poor lubricating qualities, and sometimes the use of dirty oil containing gritty substances. When hot bearings result from these causes, the treatment can be recommended that is usually applied in factories and shops when a machine becomes stalled or shows such unmistakable signs of distress that some one has to take notice. Frequently the machine must be kept running and work continued if at all possible; so the first thing to do is to flood the bearing with kerosene; this washes out the dirt, reaches any and every dry place where the oil did not go before and incidently carries off some of the heat. The next thing to do is to apply good lubricating oil rather freely, and if the bearing has not been seriously damaged it will usually cool off and give no further trouble.

Should a bearing be allowed to run hot for a considerable time, the babbitt or bronze bearing metal will become burned or glazed over and the oil burned out, leaving the bearing dry, then the excessive friction will tear particles of steel from the shaft which become imbedded in the soft metail of the bearing. This is called cutting and when the trouble has been allowed to continue until this has taken place the only remedy is an operation. The bearing must be taken down and the shaft filed and polished and the bearing scraped and refitted. By feeding kerosene and lubricating oil freely as directed above, you would likely be able to continue running without increasing the damage until port was reached or a place where repairs can be made. But if the shaft has started to cut and the bearing is left in this way, your power plant could never be considered safe, although the bearing might run reasonably cool. Sometime; probably when you least expect it, that roughed-up bearing will start to heat again and perhaps if not discovered quickly, will melt out the babbitt or damage the shaft beyond repair.

C. H. C., Saginaw, Mich.

Cool Bearings with Water

IN treating our over heated bearing which must be kept in service, the first thing to do is cool it, and water is the logical agent. Do not suddenly pour water upon it or cracked castings will result. Repeated applications of a wet cloth or a sponge will reduce the temperature sufficiently to permit of directing a steady stream upon it without danger of cracking.

If it is a split bearing and it indicates a too tight fit for the shaft, relieve the pressure by loosening the cap screws a very little and slipping a few thicknesses of paper between the cap and the body and then tightening the screws. This will keep it in commission until the bearing can be scraped or metal shims put in place of the paper ones.

In all bearings, especially solid or bushed bearings, costly work can often be avoided by proceeding in the following manner. Cool as in the first case and if necessary keep water running upon it until the engine can be stopped. Procure a few ounces of flour of sulphur and mix with oil to the consistency of thin cream. Start the engine and run the mixture into the oil hole. If a sudden rise in temperature is noted, cool with water. Keep repeating the treatment for about ten minutes, then pour in plain oil to flush out the sulphur. If the bearing still heats up, repeat the treatment.

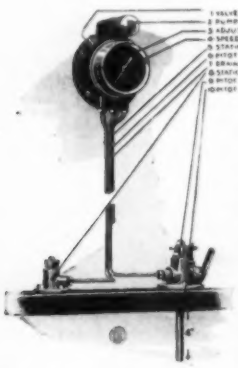
Ground glass is also used for this purpose, but sulphur is preferable in that if it reaches the other bearing surfaces no harm will result. Ground glass, while working faster, is quite an abrasive, and is liable to cause excessive wear before it is finally dissipated. In the case of an isolated bearing, however, ground glass and water may be used, provided care is exercised to flush the bearing thoroughly with water before oiling.

J. F. C., Providence, R. I.

Know Your Speed

Science Comes To the Aid of the Mariner and Provides A Device To Tell Speed and Distance Travelled

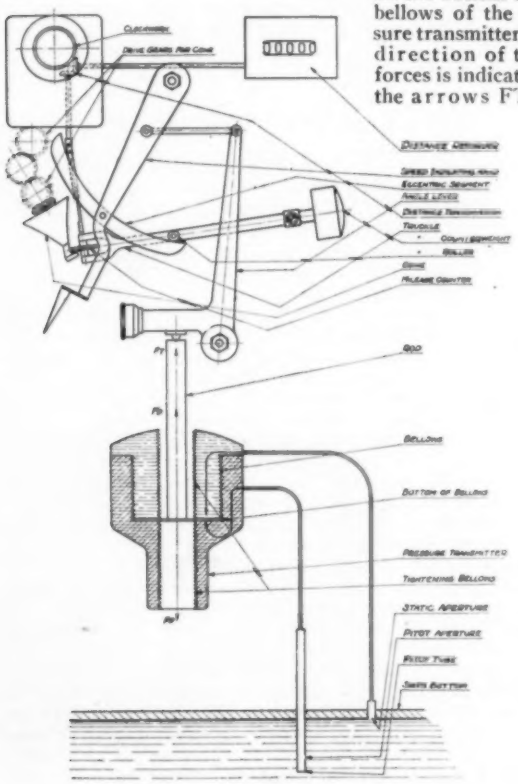
AMONG the many new devices and instruments with which the modern yacht can be equipped, the Sal-Log equipment has aroused quite some interest. The yacht Lyndonia, described last month, is equipped with one primary instrument in the engine room, showing both speed and travelled distance, two repeating speedometers and two repeating distance recorders, one of each mounted in the pilot house and on the bridge respectively. As the Lyndonia is the first American-built ship on which so complete a Sal-Log equipment has been mounted, it may be proper to give a brief description of the principle of this novel navigating instrument.



The type of log which can be used on smaller vessels

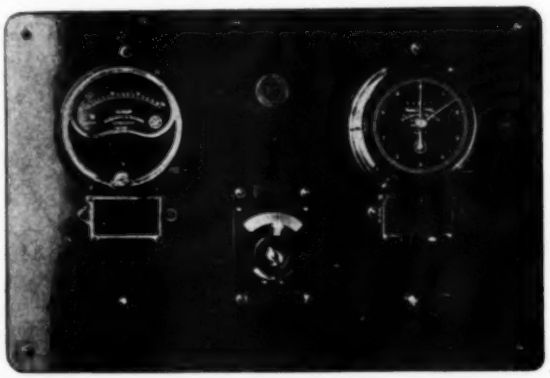
Protruding from the bottom of the ship is a tube, the Pitot-tube, the lower end of which is plugged. Just above this plug on the side facing forward is a hole, the Pitot aperture. At some distance ahead or aside of the Pitot-tube is another opening made in the hull of the ship, the Static aperture. On account of the ship moving forward, a certain pressure, the speed pressure, is created in the Pitot aperture. It is, however, to be noted that not only in the Pitot aperture but also in the Static aperture, exists another pressure due to the draft of the ship, the draft pressure.

Thus the speed pressure and the draft pressure in the Pitot-tube and in the Pitot aperture exert certain forces upward on the bottom of the bellows of the pressure transmitter. The direction of these forces is indicated by the arrows FT and FD. The draft pressure in the Static aperture is conveyed to the bottom of the bellows and exerts a downward force in the direction of the arrow FD. Consequently, the draft pressures from the Pitot and Static apertures exert equal forces in opposite directions and on this account counteract each other; in other words, the apparatus is independent of the draft of the ship.



The operating principle of the Sal-Log

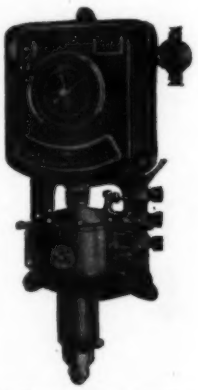
It is thus only the speed pressure that is able to give the bottom of the bellows any movement, and that upward in the direction of the arrow FT. This movement is transmitted to the mechanism by means of a rod, which actuates a bent lever. This lever is connected to a pointer, the movement of which will be proportionate to the speed corresponding to the speed pressure in the Pitot aperture. In order to take the movement out of the bottom of the bellows and its connecting rods without friction, two so-called tightening bellows are used.



Repeating speedometer and distance recorder which can be mounted in the pilot-house

The movement of the speed-indicating pointer, by means of an eccentric segment attached to it, is used to move a truckle which is driving the mileage counter up and down on a cone which revolves at a constant speed, a pre-determined position on the cone revolving slower or faster according to the velocity of the ship. In this way the speed is integrated continuously with respect to the time, i.e., the total distance travelled is obtained.

In order to make possible the reading of the speed and travelled distance in many places aboard ship (pilot house, bridge, etc.) the log is provided with arrangements for electrical transmission of these readings to repeating instruments. Our illustration shows one set of repeating speedometer and distance recorder with voltage regulator as mounted in the pilot house of the steam yacht Lyndonia.



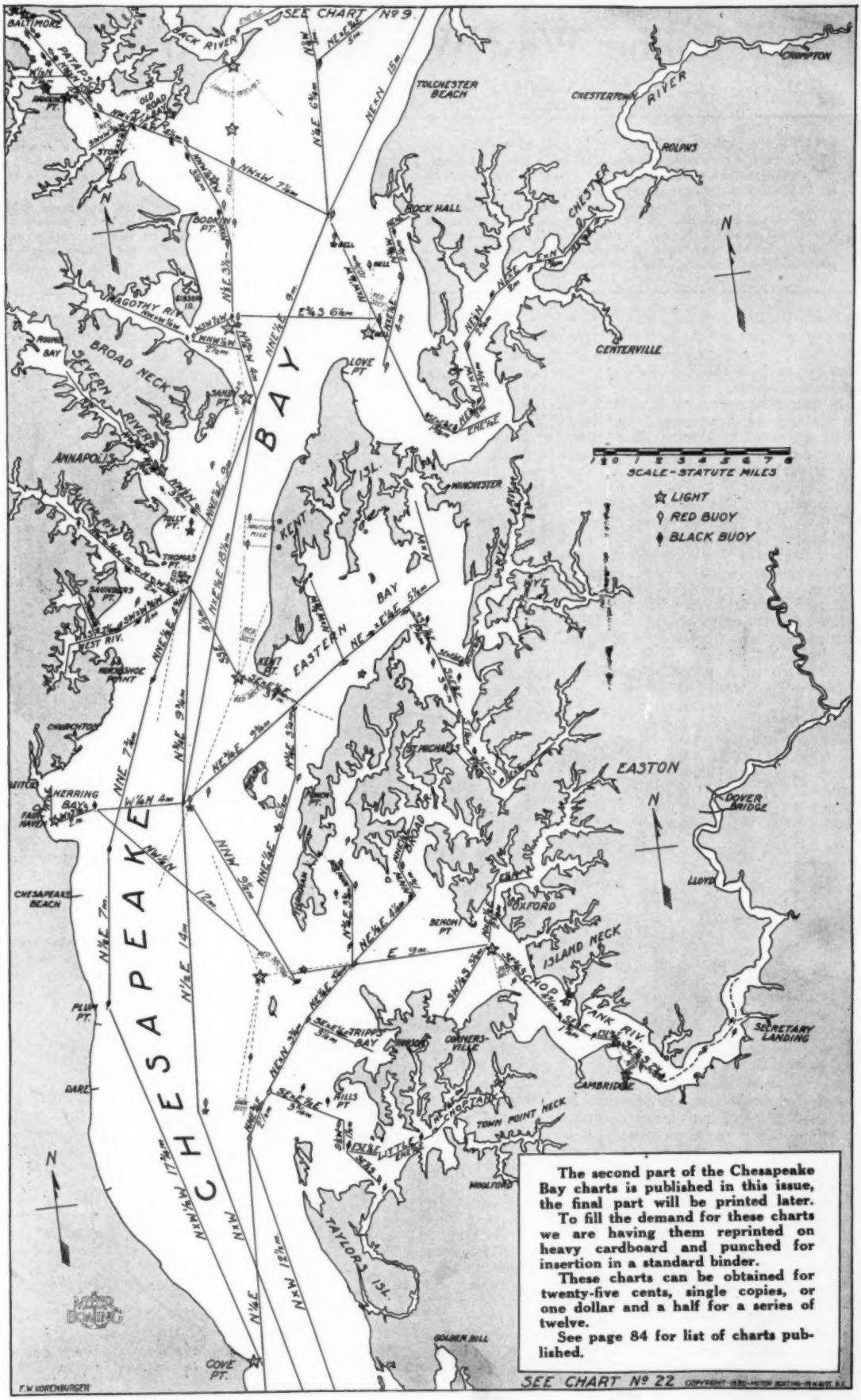
Primary instrument which gives speed and distance travelled

As to the correctness of the Sal-Log, it has been demonstrated to be accurate within 1% of the distance covered.

There is also a special speedometer built on the same principle adapted for mounting on motor and sail yachts. The Sal Speedometer can, in fact, be used on the smallest as well as the largest craft, and it is only on account of the features of travelled distance readings and repeating instruments everywhere on board a ship that the larger outfit is preferred for big ships.

Motor Boatmen's Chart No. 12—Chesapeake Bay, Part 2, Cove Point to Baltimore

For Use with Coast & Geodetic Survey Charts Nos. 1225 & 1226



The second part of the Chesapeake Bay charts is published in this issue, the final part will be printed later.

To fill the demand for these charts we are having them reprinted on heavy cardboard and punched for insertion in a standard binder.

These charts can be obtained for twenty-five cents, single copies, or one dollar and a half for a series of twelve.

See page 84 for list of charts published.

The Way We Would Do It

Conducted by F. W. Horenburger and A. E. Snyder

EVERY month MoToR BoatinG's staff of experts answers thousands of inquiries about boats, engines, accessories and, in fact, everything marine. There's hardly a branch of the sport or industry on which they are not constantly being asked to give their opinions. They are very glad to do this, as well as to be of whatever service they can to MoToR BoatinG's subscribers and readers.

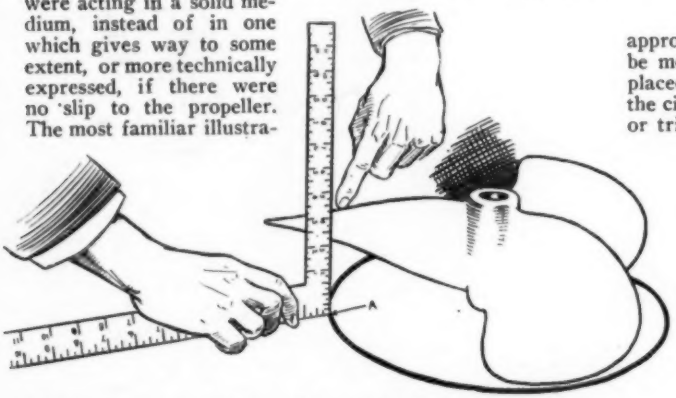
Quite naturally, many requests for information are received on subjects which are not of universal interest to every motor boatman. This, as well as the fact that it would be a physical impossibility to print answers to all questions received, makes it necessary for us to follow the rule of only printing answers to the few most important and interesting questions. However, we always give a reply by mail, so if you are perplexed about any questions pertaining to boating, don't hesitate to write to "The Way We Would Do It" Editor.

The propeller with which my boat is equipped does not seem to give me satisfactory speed for the power. I am in doubt as to the pitch of the wheel, and write to ask just how the pitch in this wheel can be determined.—A. G. D., Springfield, Mass.

In general the proper propeller depends upon the physical dimensions—its diameter and its pitch. The former can be easily measured by a foot rule or tape, but to determine or measure the amount of pitch which each particular propeller has, is decidedly another matter. The actual pitch of the propeller cannot be determined by as simple an operation as its diameter can, but, nevertheless, the method is comparatively an easy and simple one. In many cases the result will be very surprising, and may show up a pitch many inches from that you supposed you were using, and it may be an explanation of the poor results which you were obtaining.

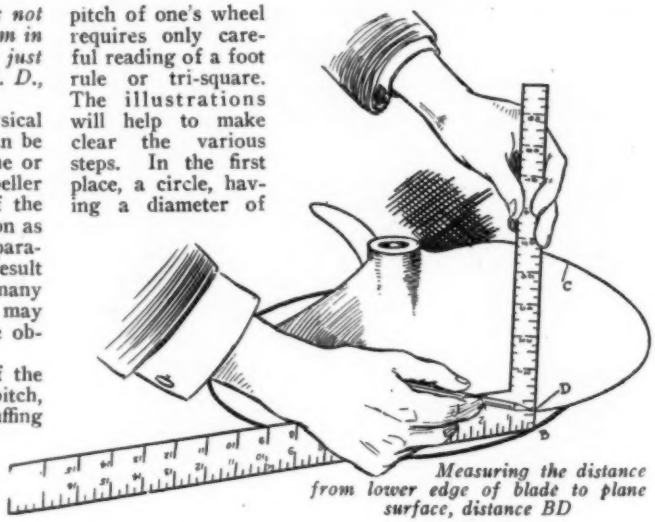
Many other faults can be traced to the propeller of the improper pitch, or to one having blades of different pitch, such as excessive vibration, constant leaking of the stuffing box, leaky hull, etc.

The pitch of a propeller represents the distance which the boat would be moved forward through the water during one revolution of the wheel, if the latter were acting in a solid medium, instead of in one which gives way to some extent, or more technically expressed, if there were no slip to the propeller. The most familiar illustration of pitch is the nut, working upon the threads of a bolt, and moving forward a certain definite and fixed amount each time it is given a complete turn around the bolt. In this case there is no slip, and the forward motion amounts to the distance from one thread to the next, measured along the axis of the bolt.

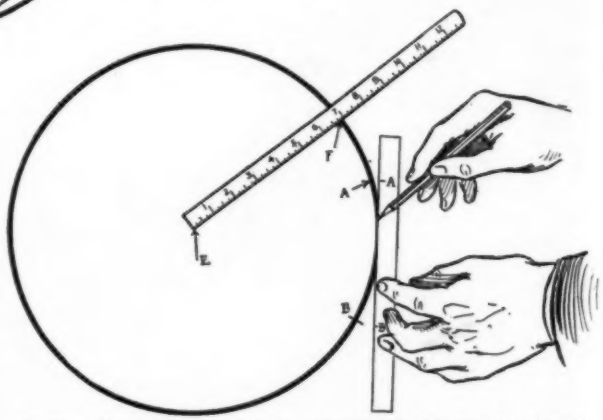


The propeller on a plane surface, perpendicular distance from point A to the upper edge of blade being measured

In the case of the screw propeller, we must necessarily have some slip or the boat would not be forced forward at all. A column of water is forced backward, the reaction of which gives a forward motion to the boat. As to what is the most efficient amount of slip is a very difficult thing to determine, other than experimentally, as it varies with each type and weight of hull, style of propeller and revolutions at which it is turned. In general, it is between 18% and 30%. Slips, either above or below these limits, usually represent an inefficient wheel, and results which can be improved upon by some change. To measure correctly the pitch of one's wheel requires only careful reading of a foot rule or tri-square. The illustrations will help to make clear the various steps. In the first place, a circle, having a diameter of approximately 2/3 or 3/4 the diameter of the propeller to be measured, is drawn upon a plane surface; the wheel is placed upon the circle so that its center and the center of the circle exactly coincide. Then, by means of a tri-square or triangle the distance from that point on the upper edge of the propeller blade which is directly above the circumference of the circle is measured. Two instruments having right angles should be used together, as this will tend to reduce the error which might result from the distance being taken perpendicular to the plane surface in one direction, but not in the other. In the particular wheel in question, this distance, as will be seen, is 4 5/16". This locates point A on the circle, and point C on the propeller blade.



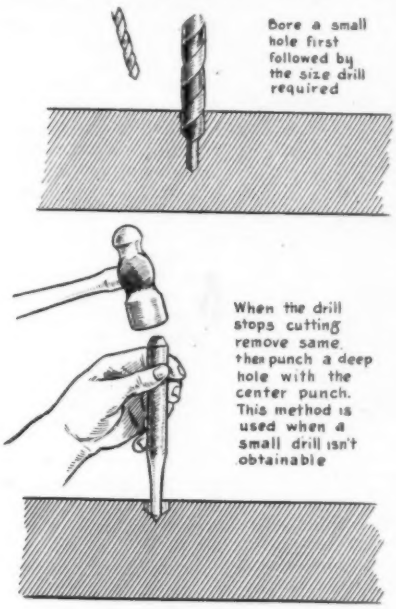
Measuring the distance from lower edge of blade to plane surface, distance BD



Finding the radius EF of the reference circle and the length of the arc AB

The next step is to measure, in a similar way, the perpendicular distance from the circle to the lower edge of the same blade, Fig. 2 showing this operation, and point D on the blade and B on the circle are located, the distance B D being 11/16".

The only other measurement now required is the distance along the circumference of the reference circle, from the points directly below the upper and lower edges of the blade, or, in other words, the distance A B. This is best measured, as shown by removing the propeller, and by means of a strip of paper and a sharp-pointed pencil, which, used as a center and moved along the circumference, allows one to expand the arc to a straight line, and the distance A′ B′, which equals A B, can be directly measured. Also the radius of the reference circle can be measured as shown.


Bore a small hole first followed by the size drill required
When the drill stops cutting remove same, then punch a deep hole with the center punch. This method is used when a small drill isn't obtainable

To drill holes in heavy plate

Considerable care should be taken in the measurements to have them accurate, as a slight error in any one of them will make the result very much in error.

Now the rest is easy, and is simply a case of applying the measurements obtained to a simple formula to obtain the pitch, which is as follows:

$$\text{Pitch (in inches)} = \frac{2 \times \pi \times EF \times (AC-BD)}{A'B'}$$

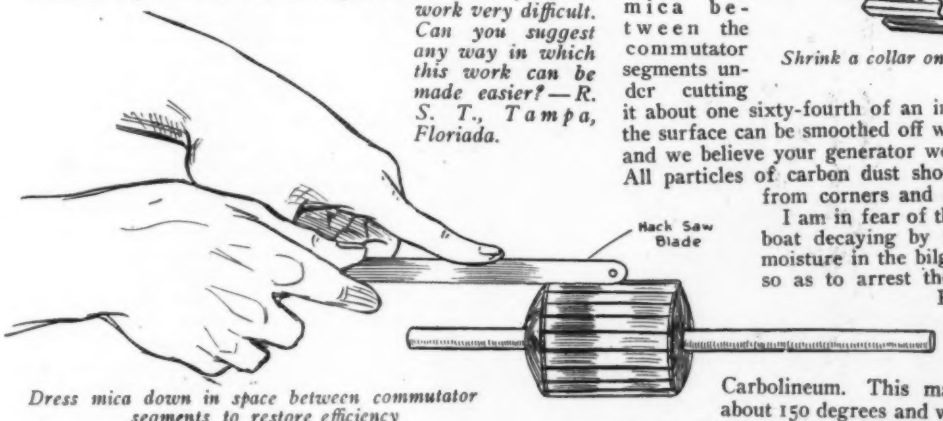
or, in our case,

$$\text{Pitch} = \frac{2 \times 3.14 \times 6\text{-}7/8 \times (4\text{-}5/16 - 11/16)}{5.125}$$

or, 30½" the pitch of the propeller illustrated.

* * *

I find it necessary to drill a number of large holes through a one-inch plate. As I have only a breast drill I find this work very difficult. Can you suggest any way in which this work can be made easier?—R. S. T., Tampa, Floriada.



Dress mica down in space between commutator segments to restore efficiency

The work involved in drilling through a large plate is difficult under the best circumstances. We would suggest that you start the hole with a small drill of one-quarter inch diameter or under. Follow this with a larger bit, gradually increasing the size until the proper diameter is obtained. Should small bits not be available, a center punch can be used to start the hole followed by a larger size of bits.

* * *

In the process of overhauling my motor I was unfortunate enough to crack the hub of the half-time gear. Since the wheel is in perfect condition otherwise, I would like to know whether this can be repaired and still render good service?—R. I. L., Schenectady, New York.

If the hub on this wheel is only cracked slightly, the wheel can be saved with a little effort. We would suggest that the hub be turned down to a true cylindrical form and a steel ring be made whose interior diameter will be five-thousandths less than the exterior diameter of the hub. If this ring is heated it will expand and can be driven over the hub while it is hot. On contracting it will shrink and clamp the broken parts of the hub and hold it securely.

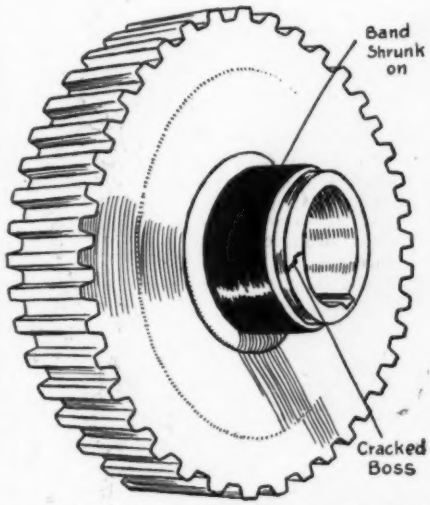
* * *

I am troubled with an electric generator which does not seem to be able to keep my storage batteries properly charged. Do you know of any reason why this should fail to operate? If the brushes are cleaned it will generate for a short time, but then drop down to a low current very quickly. New brushes do not work any better.—G. W. A., Buffalo, New York.

The fault in your generator is probably due to one of the following reasons:

A ground in the circuit; brushes grounded with brush holder and frame by carbon dust; brushes worn or not seating; commutator dirty or out of true, or high mica insulation.

We believe that your trouble is due to high mica or grounded brushes. We would suggest that the brushes be removed, and while the motor is in operation the commutator surface can be trued up. A hack saw blade can be used to dress down the mica between the commutator segments under cutting it about one sixty-fourth of an inch. After this operation the surface can be smoothed off with a very fine sandpaper, and we believe your generator would be in good condition. All particles of carbon dust should be carefully removed from corners and around brush holders.



Shrink a collar on hub of broken gear wheel

I am in fear of the wooden portions of my boat decaying by reason of the continuous moisture in the bilge. Can this be protected so as to arrest the decay?

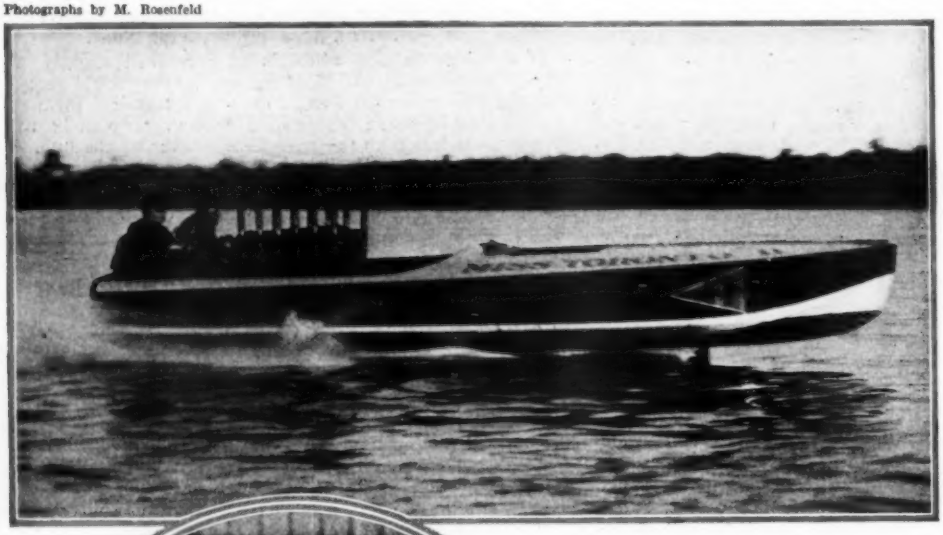
R. Y., Charleston, S. C.

A suitable wood preservative is marketed under the trade name of Carbolineum. This material is applied hot at about 150 degrees and we understand it will readily penetrate heavy material and protect it. It will not wash off with water and the surface can be painted. There is no objectionable odor such as would arise from creosote preservatives. It is applied to the wood when dry similar to an application of paint.

Miss Toronto II, Heldena II and Leopard V Win

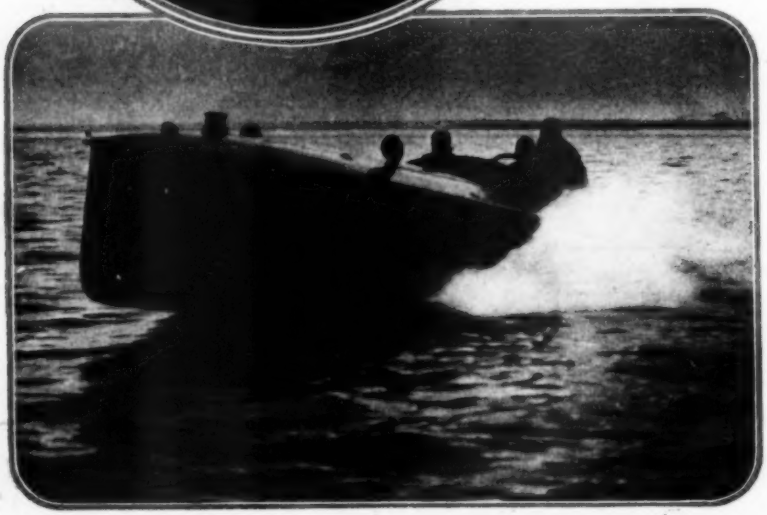
Races of the International Gold Challenge Trophy and Displacement Boat Championships—Remarkable Speeds Made by Several Boats

Photographs by M. Rosenfeld



Miss Toronto II, the only hydroplane to compete at the Toronto races

Fred Miller, owner of Heldena II and F. G. Ericson, part owner of Miss Toronto II. Both men are real sportsmen and always ready to race their craft against all comers



Heldena II, the champion displacement racer owned by Fred R. Miller of Toronto

THE boys of the Toronto Motor Boat Club try hard every year to hold a regatta of major proportions. Because a large number of the fastest boats of the country do not enter their regatta is no fault of theirs, neither is it due to any scarcity of trophies for there are prizes galore.

No more energetic group of motor boatmen can be found in the country than that comprising Jack Bickell, F. G. Ericson, Fred R. Miller, Griffith B. Clark, James P. Beaty, S. A. Sylvester, T. W. Rea, W. B. Cleland, Cecil R. Allison and several others of the Toronto Motor Boat Club. Last year they built Miss Toronto I which was not a great success but they were not discouraged at that and came back this year with Miss Toronto II which is everything anyone could wish and without doubt the fastest single screw hydroplane ever built. She had no trouble winning everything in sight earlier in the year both on the Mississippi and St. Lawrence rivers.

Unfortunately for various reasons no other fast hydroplanes were at Toronto this year to give Miss Toronto II the kind of competition she wished. Those who had worked so hard to produce Miss Toronto II and to make this year's Canadian regatta the great success it should have been, were greatly disappointed. Miss America and Miss Detroit, which were expected, could not get there due to traffic congestion on the railroads and the shortness of time between their arrival from Europe and the dates of the Detroit Gold Cup Races. Whip-po'-Will, Jr., also expected at the Toronto Races, was burned and sank in England so quite naturally, she had to be counted out. The Thousand Islands Yacht Club hydroplane building at Buffalo was in an unfinished condition as was also Arab V, Commodore Sidway's new hydroplane. Therefore, Miss Toronto's performances at this year's Canadian races were more in the nature of exhibitions than real races.

In the displacement classes there was keen competition between Heldena II, Fred R. Miller's racer now powered with a Liberty motor, Griffith Clark's Leopard V, powered with a Hall-Scott engine and Claire II, a new runabout owned by Alfred Rogers of Toronto, also powered with a Liberty motor. While Claire II ran, she performed most cred-

itably but like most Liberty engined boats, this year she did not last long. In the first event she caught fire and had to withdraw. In the second event after covering 25 miles of the 30-mile race at an average speed of 39.6 miles per hour a cracked base and the failure of the oiling system to work properly finished Claire II's racing career for 1920.

Both Heldena II and Leopard V performed well and consistently although the former met with an accident in the last race which prevented her from going to the Detroit races as had been planned. This is Heldena's fourth season of racing. She has also made her best records this year. In the 30-mile race held September 4th for the Gold Challenge Cup for Displacement Boats, Heldena II averaged 41.5 miles per hour.

Leopard V, Grif Clark's racer, powered with a Hall-Scott motor which won a number of trophies

Leopard V with her 6-cylinder Hall-Scott motor performed as well as was expected. She was hardly in the class with Heldena II and Claire II which had double the power with their 12-cylinder Liberties, yet Leopard V was only about 5 miles an hour slower than either of these boats.

The racing arrangements as usual were the best possible. The course is the best in the country, five miles to the lap, laid out in front of the grounds of the Canadian National Exhibition in such a way that the hundreds of thousands of people in attendance at the exhibition had a close-up view of the racers. The running of Miss Toronto with Mr. Ericson at the helm gave them many a thrill.

American Power-Boat Association rules prevailed at this year's Toronto race with the races in actual charge of the various committees of the Toronto Motor Boat Club.

The results follow:

September 2, 1920—10 Miles

Boat	Elapsed Time	Speed
Leopard II	23:31	25.5
Leopard V	19:07	31.4

September 2, 1920—20 Miles

Heldena II	34:13	35.1
Leopard V	35:10	34.1

September 3, 1920—10 Miles

Leopard II	26:44	22.4
Leopard V	23:54	25.1

September 3, 1920—30 Miles

Heldena II	49:29	36.4
Leopard V	53:13	33.8

September 4, 1920—20 Miles

Heldena II	33:28	35.8
Leopard V	33:37	35.7
Speeder II	34:53	34.4

September 4, 1920—30 Miles

Heldena II	43:24	41.5
Leopard V	50:03	36.0

September 6, 1920—30 Miles

Heldena II	54:18	33.2
Leopard V	55:32	32.4
Speeder II	55:37	32.4

September 6, 1920—15 Miles

Miss Toronto	20:11	44.5
Heldena II	22:00	40.7
Leopard V	26:08	34.3

September 8, 1920—20 Miles

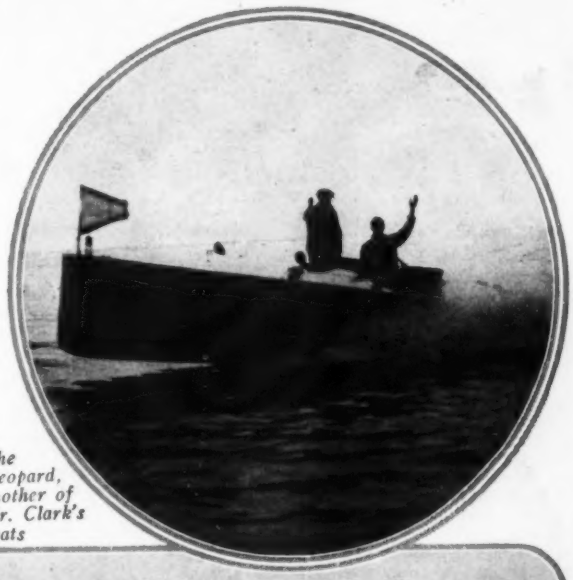
Heldena II	31:09	38.5
Leopard V	34:22	34.9
Speeder II	35:53	33.4

September 8, 1920—30 Miles

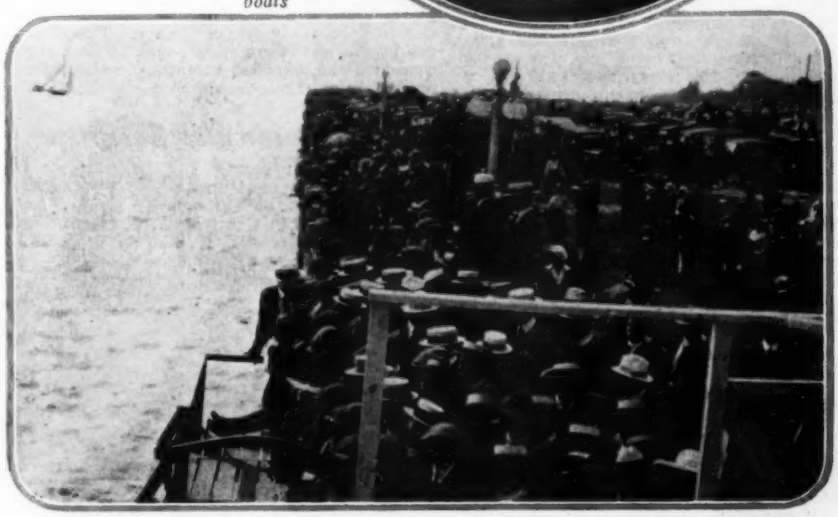
Miss Toronto II	31:45	56.8
Heldena II	42:23	42.5

September 8, 1920—Mile Trials

Miss Toronto II—Average speed 65.1 m.p.h.



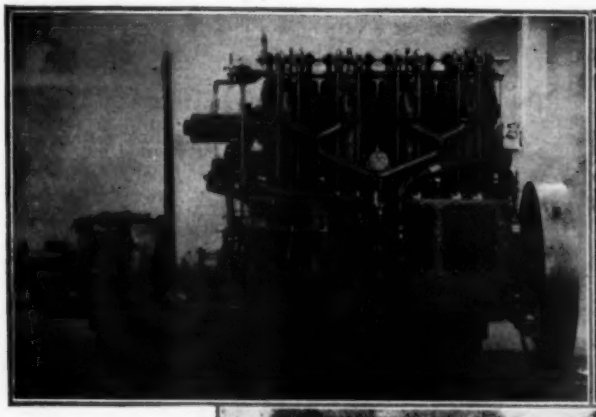
The Leopard, another of Mr. Clark's boats



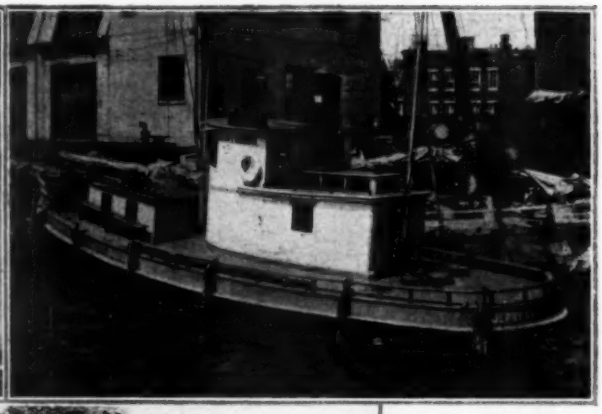
What was lacking in number of boats was made up by the crowds which came to watch the events

Yard and Shop

Notes of Interest to Both Owner and Manufacturer



Starboard side of a 65 h.p. Acme motor recently installed in a 110-foot schooner at East Booth Bay, Maine



Jerry Brown, a shipping board tug, working in Norfolk, Va., is powered with a rebuilt Sterling from the shops of Bruns, Kimball & Company

The International 32's are leaving the plant at Nyack in large installments. Here are a half-dozen waiting for their new owners to call for them

A New Speedway Engine

The Consolidated Shipbuilding Corporation, Morris Heights, N. Y., are about to assemble a new model gasolene engine which they have recently designed and developed. This engine will fill the much needed requirements in the 80 and 90 foot Cruiser class, obtaining a speed of about 20 miles, turning at a moderate number of revolutions.

This new Speedway engine is somewhat of a departure from their regular types. Nevertheless, it promises to follow the traditions of their long, successful engine building career—an engine unsurpassed for accessibility and reliability.

It is an overhead valve motor, dual valve type with a maximum number of 1200 turns per minute, turning 800 revolutions in 20-mile boats, and a maximum in extreme speeds. There will be a flexibility that will enable smaller craft with this engine installation to obtain good speeds. We are informed, however, by the Consolidated people that their new engine is by no means a high speed one. It has bee ndesigned, primarily, to meet the demand of a fair amount of speed for cruising in boats of about 80 feet in length.

Evinrude to Occupy New Plant

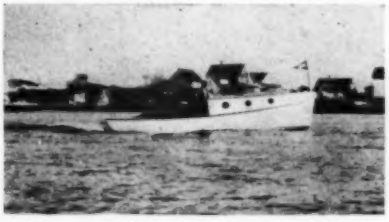
The manufacturers of the Evinrude Detachable Rowboat and Canoe Motors, have just passed through the most successful summer in their history. Despite generally unfavorable conditions throughout the country, all dealers experienced a considerable increase in sales over those of previous years.

The popularity of the little "kickers" has grown tremendously since the inception of the industry in 1910, when it was necessary to virtually beg a sporting goods dealer to order a single motor. Nowadays it is an event of no uncommon occurence to receive an order for a season's requirement of 50—or more—motors.

During November the new Evinrude plant, located on the northwest side of the city, will be ready for occupancy. Practically double the present amount of floor space will be afforded at the new plant, which will be of most modern construction.

Detroit Wins the Scripps Race

The race for the William E. Scripps trophy was won this year by A. R. Hackett's motor cruiser Pirate. Shortly after the start of this race, an unusually severe storm broke over Lake Erie and compelled most of the thirty-five entrants to make for shelter. Pirate covered the 112-mile course in 12:41:51, which is remarkable time under the severe conditions. Out of the fleet of small boats which ventured forth in this race the Metinie was lost in the gale. The crew were taken off by the U. S. Coast Guard but the boat was completely lost. Another of the boats which suffered from the gales was Miss Super Six. Her pilot house was blown away by the storm and she had to retire from the race. This contest was probably the most gruelling test ever undertaken by amateur navigators, and the fact that all but one of the boats survived the storm shows that the skippers and boats were both competent and able.



Wosex, a 32-foot cruiser equipped with a Kermath motor which made a non-stop run of 142 miles for a trial trip

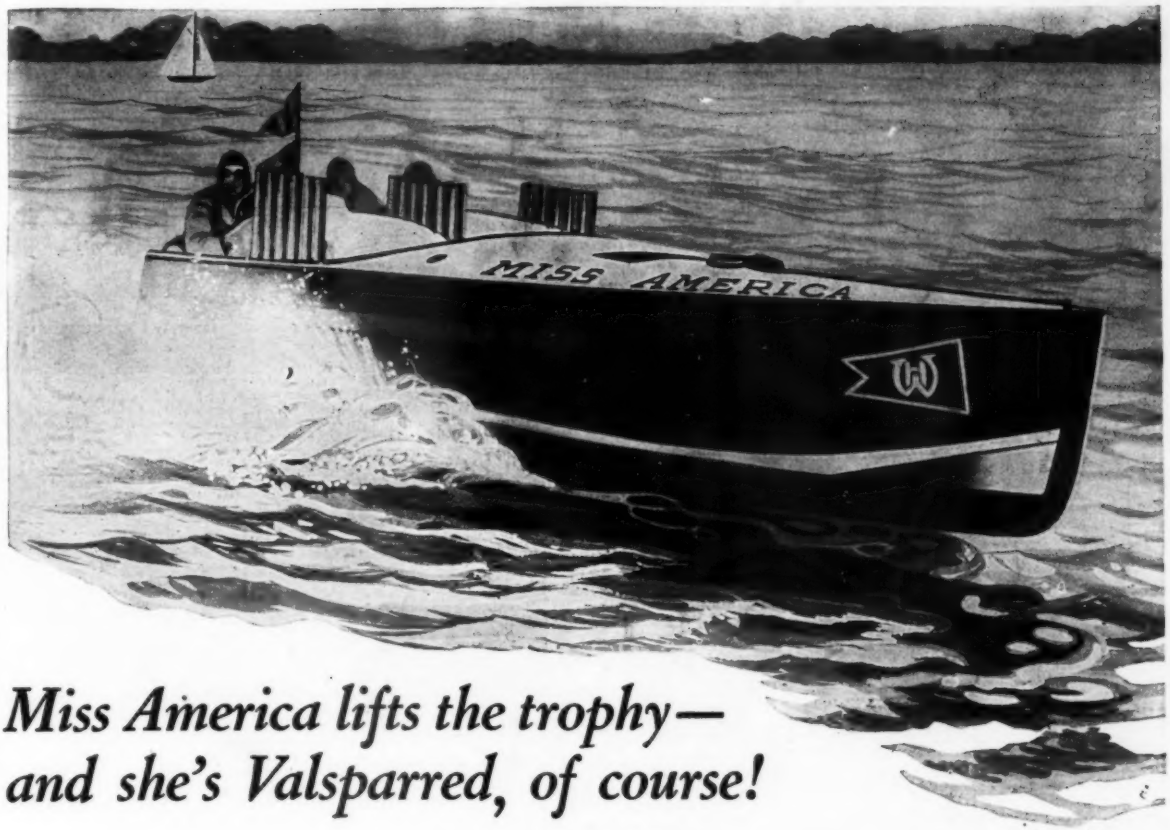
Ever-Warm Safety Suits to Rent

The National Life Preserver Company of 11 Broadway, New York, has recently undertaken a rental system whereby passengers sailing from New York on any Transatlantic liners can hire a Safety Suit for the one-way voyage for $5.00. This suit is placed in his or her stateroom and is left there at the end of the voyage. This insurance means that, whatever happens, the voyager is safe, and this confidence adds to the comfort and enjoyment of the trip.

In Answer to the Call

In the August issue of MoToR BoatING we asked after the whereabouts of

(*Continued on page* 80)



From photo by Underwood & Underwood, N.Y.

Miss America lifts the trophy— and she's Valsparred, of course!

(A note from the builders.)

Algonac, Mich., July 22, 1920.

The two international challengers, *Miss America* and *Miss Detroit V,* are both Valsparred. *Miss America* travels at the rate of 80 miles an hour and *Miss Detroit V* at the rate of 70 miles an hour.

C. C. Smith Boat and Engine Co.,
C. C. Smith, President

Then from the Isle of Wight, the scene of the International Motorboat Races for the Harmsworth Trophy, came the news that both boats won! *Miss America* first— *Miss Detroit V* second.

To this signal proof of Valspar's efficiency can be added the testimony of thousands of boat owners that "there is no varnish like Valspar"— for every kind of water craft— from canoes to cruisers.

Any boat that's worth varnishing is worth Valsparring.

VALENTINE & COMPANY

Largest Manufacturers of High-grade Varnishes in the World — Established 1832

New York Chicago Boston Toronto London Paris Amsterdam
W. P. FULLER & CO., Pacific Coast

VALENTINE'S
VALSPAR
The Varnish That Won't Turn White

VALENTINE & COMPANY, 454 Fourth Ave., New York
Special Navy Offer

For 15c in stamps, we will send you a 30c sample can of Valspar— enough to finish eight square feet of surface, and booklet, "How to Use Valspar on Boats." Fill out coupon.

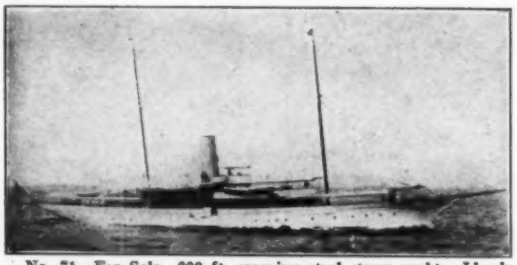
Dealer's Name .....
Your Name .....
Your Address .....

Naval Architects and Yacht Brokers

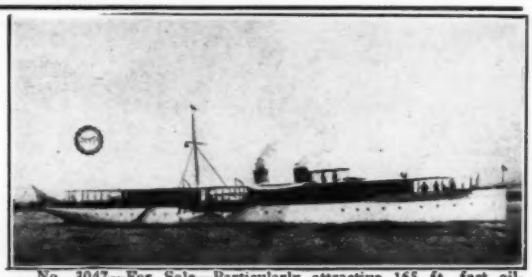
COX & STEVENS

15 William St., New York
Telephone—1375 Broad
Cable—BROKERAGE

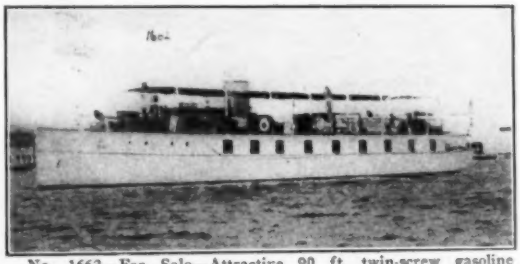
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



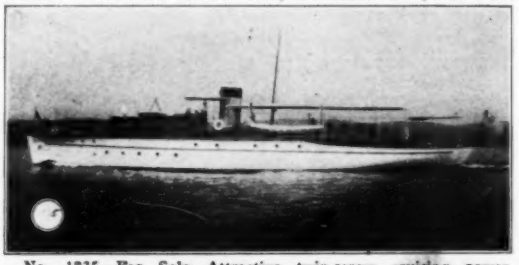
No. 71—For Sale—200 ft. seagoing steel steam yacht. Lloyds highest rating. Cox & Stevens, 15 William Street, New York.



No. 3047—For Sale—Particularly attractive 165 ft. fast oil-burning twin screw, steel steam yacht. Speed up to 19 miles. Beautifully finished and furnished. Large accommodation includes dining saloon and music room on deck, six staterooms and three bathrooms below aft. Cox & Stevens, 15 William Street, New York.



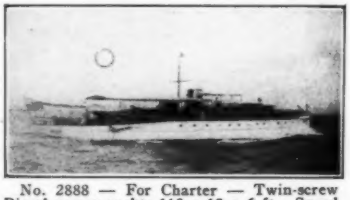
No. 1662—For Sale—Attractive 90 ft. twin-screw gasoline houseboat. Speed 10-12 miles. Large saloon, four staterooms, two bathrooms. All conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



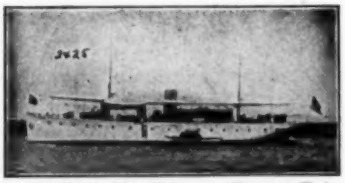
No. 1835—For Sale—Attractive twin-screw cruising power yacht, 98 x 16.6 x 4.6 ft. Speed up to 16 miles. Two air-starting, reversible Standard motors. Large dining saloon, two double and two single staterooms, bathroom and two toilet rooms, etc. Practically in commission. Cox & Stevens, 15 William Street, New York.

No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles; two 300 H.P. Standard motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Cox & Stevens, 15 William Street, New York.

No. 979—Bargain—Especially desirable 98 ft. twin screw cruising power yacht. Speed up to 16 miles; Standard motors. Deck dining saloon, three double and one single staterooms, two bathrooms, etc. Teakwood deck house and deck trim. Completely overhauled, new furnishings throughout. In commission. Cox & Stevens, 15 William Street, New York.



No. 2888 — For Charter — Twin-screw Diesel power yacht; 110 x 18 x 6 ft. Speed up to 14 miles; two 150-175 H.P. Craig-Diesel motors. Extremely economical to operate on account low fuel cost and small consumption. Excellent accommodation. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York City.



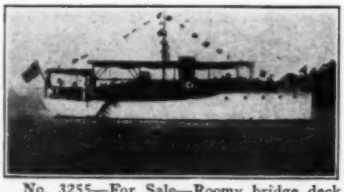
No. 2425—For Sale or Charter—Twin-screw cruising power yacht; 90 x 16.6 ft. Speed up to 12½ miles; two 6 cyl. 60/90 H.P. motors. Excellent accommodation. Cox & Stevens, 15 William Street, New York.

No. 3533—For Sale—Fast 72 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Cox & Stevens, 15 William Street, New York.

No. 3426—For Sale—High speed Lawley built twin-screw hand V-bottom cruiser; 60 x 10.9 x 3 ft. Speed up to 25 miles; two 130/180 H.P. Van Blerck motors, new 1917. Double stateroom, large saloon, bath and toilet room, etc. Handsomely finished and furnished. Price attractive. Cox & Stevens, 15 William Street, New York.

No. 1997 — For Sale — Cruising power yacht; 81 x 12 x 4 ft. Speed up to 15 miles; 6 cyl. 100-120 H.P. "20th Century" motor. Dining room, three staterooms, toilet room, etc. Cox & Stevens, 15 William Street, New York.

No. 2564—For Sale—50 foot Elco bridge deck cruiser. Built 1917. Speed 12 miles 6 cyl. 60/85 H.P. Sterling motor. Double stateroom, saloon with upper and lower berths, toilet room, galley, etc. Price attractive. Cox & Stevens, 15 William Street, New York.



No. 3255—For Sale—Roomy bridge deck cruiser; 60 x 13.6 x 3.6 ft. Built 1916. Speed up to 11 miles. 40/50 H.P. "20th Century" motor. Completely overhauled 1920. Large saloon, two double staterooms, toilet room, etc. Excellent condition. Cox & Stevens, 15 William Street, New York.

Advertising Index will be found on page 110

NAVAL ARCHITECT
ENGINEER
BROKER
MARINE INSURANCE

HENRY J. GIELOW

23 WEST 43rd STREET, NEW YORK

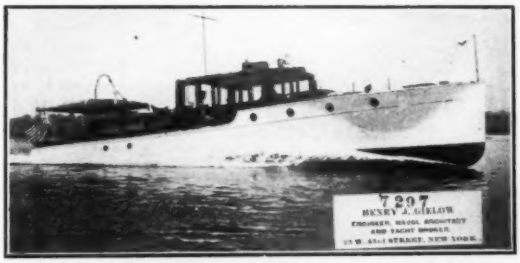
Tel.: Murray Hill 9134
Cable Address:
Crogie, New York
A.B.C. Code

Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

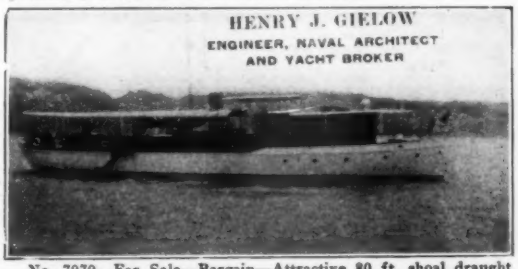
I have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in my office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. I am in a position to submit full information on any type of boat upon request.

No. 9597—For Sale—Possibly Consider Winter Charter—Handsome 162 ft. seagoing steam yacht, second to none of her size. Finest condition and perfectly appointed. Cruising speed 12 knots. Steel construction, thoroughly overhauled and refitted throughout, 1919. Mahogany and teak trim. Deck dining saloon and music room. Large bridge deck. Two double and four single staterooms, 2 baths. Ice plant, steam heat. Large water supply and liberal cruising radius. Price reasonable for yacht of size and type. Henry J. Gielow, 23 W. 43d Street, New York City.

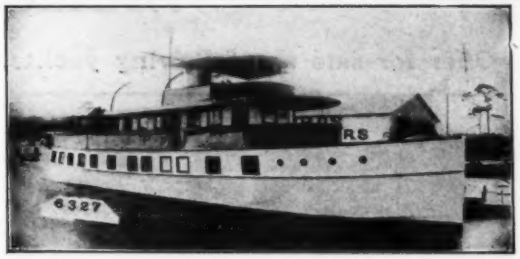
No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley. 2 double, 3 single staterooms. Hot water heat. 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, 23 W. 43d Street, New York City.



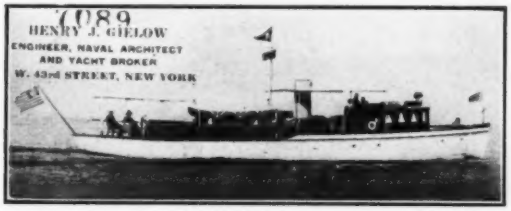
No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat though shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, 23 W. 43d Street, New York City.



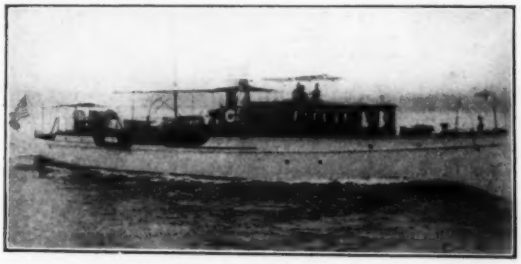
No. 7070—For Sale—Bargain—Attractive 80 ft. shoal draught twin-screw motor yacht, 14 ft. beam. Standard engines, all overhauled 1920. Speed 12 miles. Good sea boat and desirable for South. Four staterooms and main saloon. Galley and dining saloon in mahogany deck house. Good deck space. Completely equipped. Was not in Govt. service. Launch and row boat. Owner anxious to sell. Henry J. Gielow, 23 W. 43d Street, New York City.



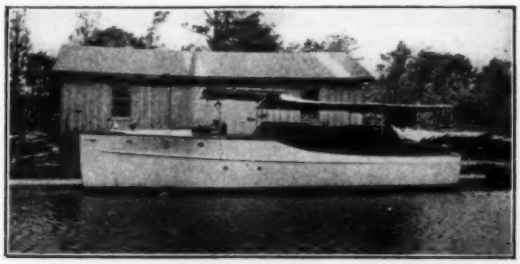
No. 6327—Sale—Charter—New 98 ft. cruising houseboat located Southern waters. Modern in design and appointments. 100 horsepower motor gives speed 10 miles. Hot water heat. Deck dining saloon and living room, also owners state room. Below are 2 double and 4 single staterooms. Most desirable type of Florida cruiser. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7089—For Sale—Price Low—Modern 78 ft. twin-screw motor yacht in finest condition. Entirely overhauled 1920. All new furnishings supplied. Accommodations are deck dining saloon, three staterooms, saloon and bath. Large galley. Standard motors. Speed 12 miles. Good sea boat. Owner purchased larger yacht reason for selling. Seen New York. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht, 15 ft. beam; Standard motors, speed 11 miles. Deck dining saloon, 2 double staterooms, accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, 23 W. 43d Street, New York City.



No. 7597—For Sale—Reasonable—36 ft. bridge deck cruiser, 10 ft. beam; 30 inches draught. 30 horsepower 4 cycle high grade motor. All fine condition. Speed 10 miles. Stateroom and saloon sleep 4. Two toilets. Controls on bridge. Finished mahogany. Electric lights. Completely equipped. Located near Baltimore, Md. Henry J. Gielow, 23 W. 43d Street, New York City.

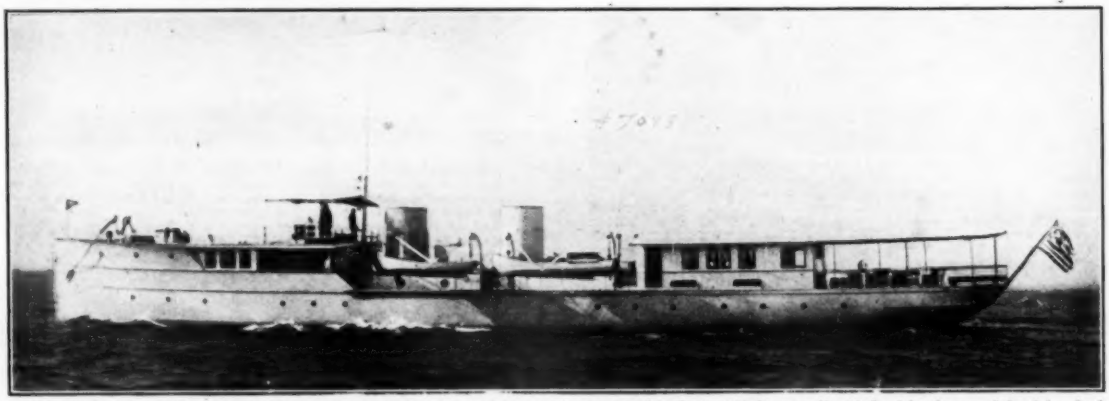
TAMS, LEMOINE & CRANE

NAVAL ARCHITECTS AND YACHT BROKERS

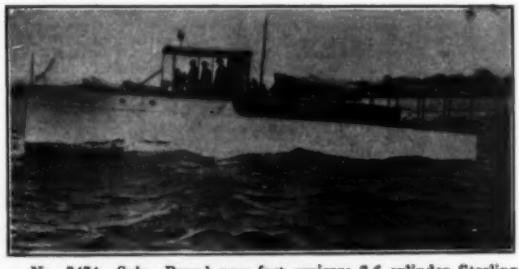
Telephone 4510 John

52 Pine Street New York City

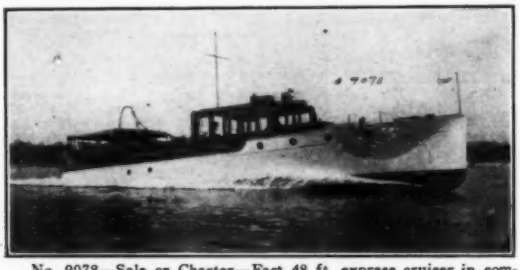
Offer for sale the following yachts, some of which are available for charter



No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. draft. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.



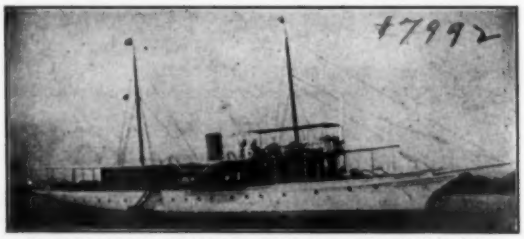
No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors; speed 21½ miles; all modern conveniences.



No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled this year in all departments.

No. 8102—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles, electric light, hot water, heat and refrigerating plant.

No. 1902—Sale or Charter—In Florida. Most commodious houseboat of her length available; 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft.



No. 7992—For Sale—Modern steel motor yacht. 115 ft. 7 in. x 17 ft. x 5 ft. 3 in. draft. 2—100 H.P. Standard motors. Speed 15 miles. Commodious owners' quarters.

No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

Advertising Index will be found on page 110

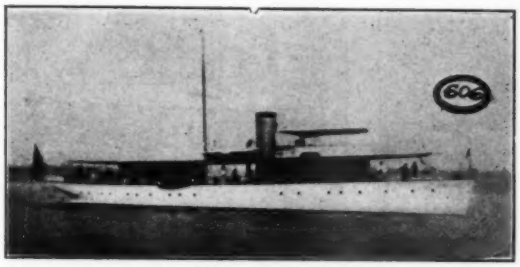
EDWARD P. FARLEY CO.,

6 N. Michigan Avenue, Chicago, Ill.
Telephone State 6494

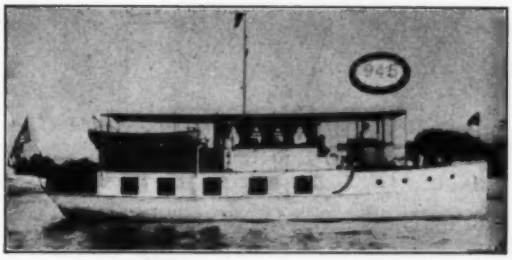
Naval Architects, Yacht Brokers, Surveying, Marine Insurance

We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter.

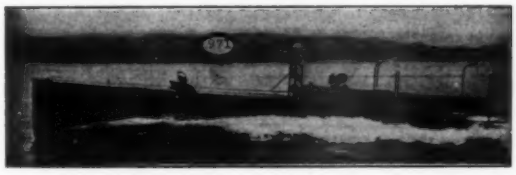
Plans, Photographs and full particulars furnished on request.



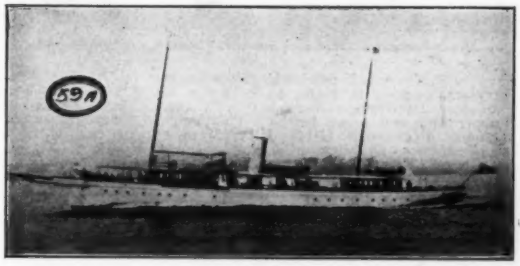
No. 606—For Sale—Modern steam yacht, 123 ft. x 17 ft. x 6 ft. draft. Speed up to sixteen miles. Three single and two double staterooms. Dining and social hall on deck. In excellent condition throughout. The finest yacht of her size available.



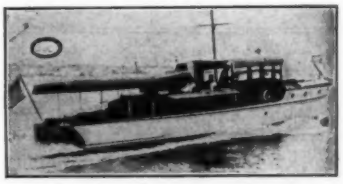
No. 945—For Sale—Mathis 52 ft. houseboat. Launched in December, 1919. Is practically a new boat. Furnishings, etc., are of the best.



No. 971—For Sale—35 ft. Speedway runabout in excellent condition. 150 H.P. Speedway motor, electric starter. Speed 27 miles. Mahogany planking and finish. Batten seam construction. Fully equipped with top, windshield, etc., and all extras as furnished by builders. A rare bargain.

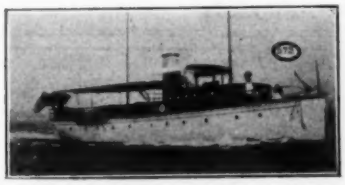


No. 59a—For Sale—170 ft. steel steam yacht. Six double staterooms, large dining saloon and social hall on deck. Triple expansion engine. Speed up to sixteen miles. Excellent condition throughout.

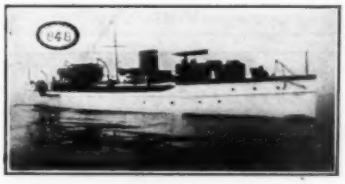


No. 880—For Sale—56 ft. x 11 ft. 6 in. x 3 ft. twin-screw express cruiser. Completed 1917. Van Blerck motors. Guaranteed speed 25 miles. Attractively arranged and furnished. Was not in government service.

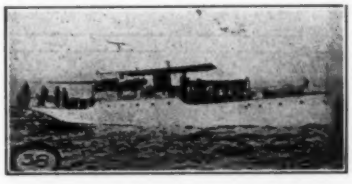
No. 83—For Sale—85 ft. twin-screw cruising yacht. 16 ft. 7 in. beam, 3 ft. 6 in. draft. Excellent for southern cruising. Three double, one single staterooms, bath, also dining saloon on deck. Cruising speed 14 miles. Is in excellent condition and fully equipped with every modern convenience.



No. 573—For Sale or Charter—91 ft. x 14 ft. x 4 ft. 3 in. Twin-screw gas yacht. Winton motors. Speed up to 17 miles. Roomy accommodations with every convenience. In excellent condition, fully equipped, modern.



No. 848—For Sale—Modern twin-screw cruiser, 84 ft. x 13 ft. 6 in. x 4 ft. 8 in. Sterling motors. Speed 13 miles. Two double staterooms, bath, dining saloon forward, with Pullman berths. Excellent condition. Fully equipped.



No. 74—For Sale—78 ft. Lawley built cruiser. Winton motor. Two commodious double staterooms. Two toilets. Roomy deckhouse serving as dining saloon. A very able and modern boat.

No. 986—For Sale or Charter—1919 twin-screw cruiser. Houseboat type. 62 ft. x 15 ft. 4 in. x 2 ft. 6 in. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Excellent for Southern or River use.

HENRY H. JENNINGS HERMAN JAGLE

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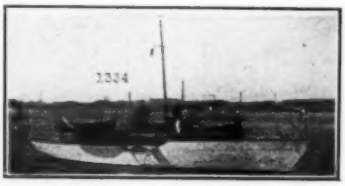
Our 25 Years' Experience and Our Knowledge of the Yachts We Offer, Insure Satisfaction to Clients

SEND SIX CENTS FOR OUR ILLUSTRATED CATALOGUE

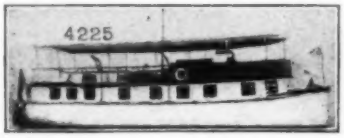
No. 4322—Sale or Charter—Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.



No. 1334—60 foot cruiser. Double stateroom. Two transom berths in forward cabin and two in after cabin. Sleeps 6 to 8 people. Two berths for crew. New 35-85 H.P. Sterling motor installed this year. Self starter. Speed 12 miles. Electric lights, etc.

No. 2144—60-ft. yacht. Draft 2 ft. 8 in. Two double staterooms, main saloon, large deck saloon, bath, etc. 60 H.P. Sterling motor. Speed, 10-12 miles.

No. 2131—Brand new V-bottom express cruiser, (similar to cut). 45 x 10.6 x 3. Double stateroom, main cabin with two upper and two lower berths. Two toilet rooms, 6 cylinder 13-145 H.P. Sterling motor. Speed 20 miles.



No. 4225—Sale or Charter—51 foot power houseboat. Three staterooms and main saloon sleeps seven people. 32-37 H.P. Standard motor. Speed 8 miles.

No. 2136—Sale or Charter—Twin screw 80 foot power yacht. Two double staterooms, dining saloon, etc. Two 220 H.P. Standard motor. Speed up to 21 miles.

Telephone 480 Whitehall

Cable Address Windward, N. Y.

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Marine Insurance
Appraisals

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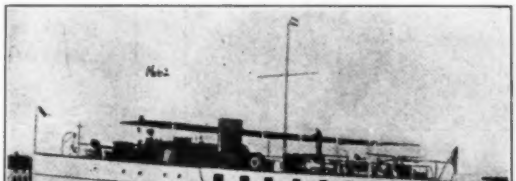
YACHT AGENT AND SHIP BROKER

29 BROADWAY NEW YORK

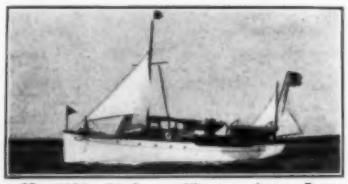
High class yachts of all types for sale and charter; also mercantile vessels of all classes.

Let us know your requirements

No. 5266—Steel ocean going steam yacht. Length 230 ft. Built to Lloyds highest rating. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

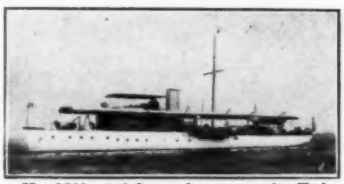


No. 5997—90 ft. power house yacht. One of the most desirable yachts of the type. Available for purchase or charter. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 4079—70 ft. auxiliary cruiser. Lawley built. Winton engine. Reasonable price. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

No. 1212—One of the fastest and largest of the express yachts. Speed over 30 miles. Twin-screw. Perfect condition. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 2530—110 ft. steel power yacht. Twin-screw. Best design and build. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

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WILLIAM GARDNER & CO.

Naval Architects, Marine Engineers and Yacht Brokers

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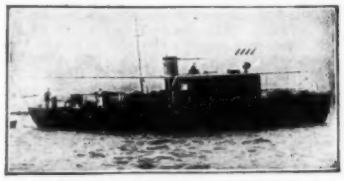
We have a complete list of Yachts of every description for sale and charter

Plans, Photos and full particulars furnished on request

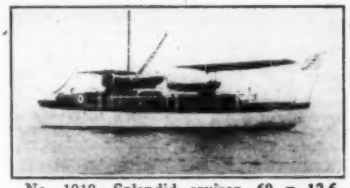
No. 1338—Power yacht, flush deck, 135 x 15.8 x 7.6. Lawley built, two 250 H.P. Speedway motors, splendid accommodation. Offered by an estate.

No. 1937—Charter—Sale—Attractive twin-screw power yacht, 110 x 18, Diesel engines. Speed about 13 knots. Excellent accommodation and exceptionally economical to operate.

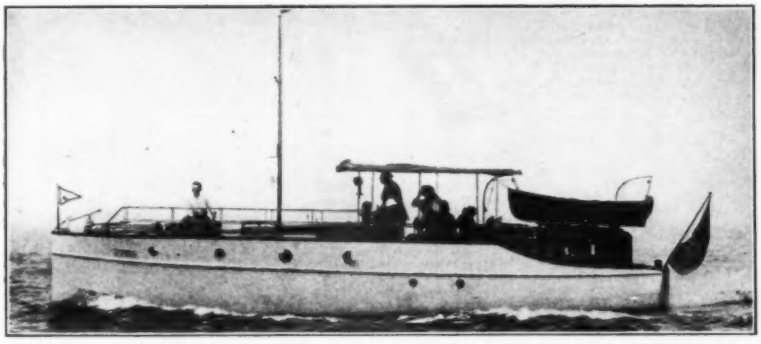
No. 1939—Ideal power yacht, 80 x 14.6, two 6 cylinder Sterling motors. Speed 14 miles. Everything in A-1 condition.



No. 1483—Twin-screw power yacht, 90 x 17 x 4, two 6 cylinder 20th Century motors. Speed 11 knots. Large accommodations.



No. 1919—Splendid cruiser, 60 x 12.6, four cylinder 50 H.P. motor. Good accommodation. First-class condition. Low figure.



For Sale or Charter for Winter—40 ft. motor cruiser "Paper Doll." Type—Bridge deck, deep sea cruiser. Length 40 ft. 1 in. o.a., 40 ft. 0 in. w.l., beam 9 ft. 1 in., draft 3 ft. 4 in. Speed 10 knots. Designed and built by Reliance Boat Co., N. Y., 1911. Thoroughly overhauled 1920, at which time new machinery was installed throughout. Construction of Hull—Frames oak. Plank Southern pine. Fastenings copper riveted over burrs. Bow plumb. Transom stern oak. Flush deck forward. Bridge deck amidships. Aft cabin trunk. Controls all at one point on bridge deck. Arrangement—Chain locker in fore peak. Next, large lavatory complete and including large clothes locker. Next aft, galley 4 ft. long and full width of ship, containing unusually large ice box, food and dish lockers, sink, three burner stove with oven, etc., and complete cooking equipment. Next aft, owner's cabin. 1 double berth, 7 ft. 0 in., long with spring; 1 single berth, clothes lockers, chart and flag lockers and complete equipment. Next aft, engine room under bridge deck, all equipment installed 1920, including Sterling motor, 6 cylinder 4 cycle 5½ in. x 6 in. Bosch magneto and coil, Schebler carburetor, reverse gear and clutch. Equipment never used until August 1, 1920. First class in every particular. Two copper tanks, 100 gallons each for gasoline and two copper tanks, 100 gallons each for water, both feed by gravity—in new piping installed 1920. Engine room ventilated by forced draft, and accessible from owner's cabin and from bridge deck. Next aft, is another cabin with two berths and private lavatory and dressing room attached, including clothes lockers, bureau, etc. Boat has unusual headroom (6 ft. 4 in. throughout). On bridge deck at wheel is clutch, spark and gas control, also search light. Brass binnacle and compass most conveniently arranged for 1 man control. Complete sailing equipment including 1-60 lb. anchor, 1-100 lb. anchor, galvanized chains, double windlass military mast and yard. No tender. This is an exceptionally well built and equipped cruiser with more accommodations than are usually found on a boat of this size. For particulars as to terms or visit of inspection address, Joseph H. Wallace, 5 Beekman Street, New York.

No. 621—For Sale—Express cruiser, 50 ft. x 9 ft. 6 in. x 2 ft. 3 in. Engine and crew's quarters, including toilet, forward. Large cockpit amidships. Cabin, toilet room and galley aft. 160 H.P. Sterling, self-starter, lighting system, etc. Speed 15 to 22 miles. Suitable for southern use. Excellent condition. Apply John G. Alden, 148 State St., Boston.

For Sale—60 ft. x 14 ft. x 3 ft. motor boat with 25 H.P. 4 cylinder 4 cycle motor. Speed 8 miles per hour. Built in 1910. Price $1,800, including equipment. Write for details. L. M. Champaign, Ithaca, N. Y.

For sale—1 pair Bausch & Lomb prism binoculars, 6 by 30 power. Just the thing to complete your motor boat equipment. Buy now for next season. Percy M. Child, 1110 14th St. N.W., Washington, D. C.

For Sale—1 2 KW. direct connected Carlisle & Finch electric outfit, with arc search lamp. Percy M. Child, 1110 14th St. N.W., Washington, D. C.

For Sale—Forty-six foot by sixteen by four foot cruiser. Speed eight miles. Heavily built and fully equipped in every detail. Has two staterooms and power tender. For details address Box 40, MOTOR BOATING, 119 West 40th Street, New York.

TRIMOUNT WHISTLE BLOWER OUTFITS
Blower runs by friction contact with engine flywheel. Whistle of brass, nickel-plated.
Made in 3 sizes.

TRIMOUNT ROTARY HAND BILGE PUMPS
All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience.
Made in 3 sizes.

TRIMOUNT ROTARY POWER CO.
20 Heath Street Boston, Mass.
(Factory: 292 Whiting Ave., E. Dedham, Mass.)

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Cut one inch deep, one column wide..... $ 5
Cut 1½ inches deep, 1½ columns wide..... $10
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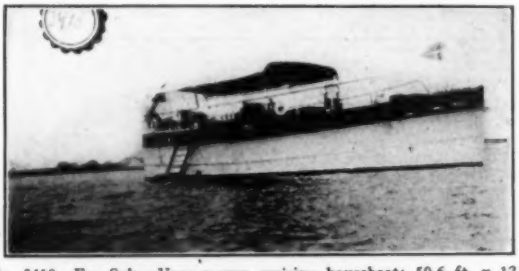
Terms: Cash with order.

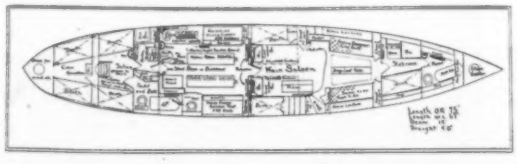
Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.



No. 3410—For Sale—Very roomy cruising houseboat; 50.6 ft. x 12 ft. x 2 ft. 3 in. draft. Speed 12 miles; 85 H.P. Van Blerck motor. Accommodations include large saloon; one double and three single staterooms, bath and toilet, etc. Large deck space. Excellent boat for Florida waters. Price reasonable. Apply to Cox & Stevens, 15 William Street, New York.

For Sale—Twin screw raised deck cruising motor yacht. 75 ft. x 17 ft. x 5 ft. 3 in. Six cylinder Holmes motor. Especially desirable for cruising in Southern waters. Splendid accommodations as shown in plan. Fully equipped. For familiar particulars apply to Hollis Burgess Yacht Agency, 15 Exchange St., Boston, Mass.



2 mast schooner, 125 ton sound and seaworthy. Ready to go. Price, $3,500.00. A. E. Reimer, 440 52nd Street, Brooklyn, N. Y.

Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types $50 each and up. Special high tension 2 and 4 cylinder Magnetos $9.50 each. Electric and Gas Head Lamps—Coils—Carburetors—Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dep't. B, West End, Pittsburgh, Pa.

CANADIANS, Second-hand engine bargains. Send for list.
GUARANTEE MOTOR COMPANY
73 Bay Street, North Hamilton, Ont., Canada

For Sale—36 ft. Elco express boat, mahogany finish. Complete with automobile top, glass wind shield, starter, wicker chairs. Located on the Great Lakes. Box 39, care of MoToR BoatinG.

SPEEDWAY ENGINE
$500.00

Six cylinder "Speedway marine engine" develops 48 H.P. at 900 revolutions. Weight about 1,000 lbs. Price also includes the built in Speedway reverse gear, magneto, and new "Atwater Kent." This engine has received the best of care and is in excellent condition. First certified check for $500.00 takes this bargain. Address F. A. Hinrichsen, care Gordon-Van Tine Co., Davenport, Iowa.

For Sale—Rochester "Bilt Rite" standard cruiser, 40 ft. x 9 ft. 6 in. x 33 in. Sleeps six and crew of one. Used less than two seasons. Just like new. Will give thorough demonstration. Owner negotiating for larger boat and will sell at a big bargain for QUICK SALE to facilitate closing deal for larger boat. Address Erdle Perforating Company, 171 York St., Rochester, N. Y.

Canada's exclusive wholesale and retail marine engine jobbers. Dominion's Largest Distributors. Free illustrated catalog, showing prices of twenty-six manufacturers. Canadian Boat and Engine Exchange, Ltd., Toronto, Canada.

For Sale—2 Model J. Van Blerck Motors, 215 H.P. each, entirely rebuilt and in A-1 condition. Bowler, Holmes & Hecker Co., 259 Greenwich St., New York City.

Use "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

For Sale—World's fastest displacement runabout, "Miss Nassau," who holds all A.P.B.A. records—powered with Smith-Liberty 12 cylinder motor—guaranteed speed of better than 46 miles per hour. Will sacrifice for $5,000.00, which is just the cost of motor. C. B. Johnston, care of The Truck Engineering Co., East 71st St., and Broadway, Cleveland, Ohio.

For Sale—32 foot mahogany runabout "Attaboy," with brass trim—complete equipment—60 H.P. "Loew-Victor" engine—speed 23 miles per hour—seats 10 comfortably—Cheap for quick sale. Boat is in commission and inspectable at C.Y.C., Cleveland, Ohio. C. B. Johnston, care of The Truck Engineering Co., East 71st St., and Broadway, Cleveland, Ohio.

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EAGLE TWO CYCLE ENGINES

We purpose to close out at greatly reduced prices our entire stock of "Eagle" two cycle engines, as we intend to discontinue the manufacture of this type of engine in the future. Write at once for information to the

TORRINGTON COMPANY
STANDARD PLANT
Torrington, Conn.

Wanted—35 to 42-foot raised deck cruiser, 4 or 6 cylinder 4 cycle. Speed: 10 to 14 miles. The boat must stand inspection. Give full particulars, picture and price. Address: Box 38, MoToR BoatinG.

HAMILTON MARINE ENGINE EXCH., Inc.
440-444 52nd Street, Brooklyn, N. Y.

Rebuilt Engines in stock for Immediate Delivery to Power Your Motor Ship Yacht or Tender. Write or wire us to hold the Engine you select. Our price is right in comparison to rebuilt Engines.

	H.P.	Inches	Cyl.	Price
Standard	300	10 x10½	6	$4,000.00
Standard	100	8 x10	6	2,800.00
Standard	75	8 x10	4	2,200.00
Standard	37	6 x 8	4	1,160.00
Graig	300	11 x15	6	2,600.00
Pair				5,000.00
Graig	125	11 x15	4	2,000.00
Graig	120	6½x 7	6	1,600.00
Graig	21	5¼x 6	3	360.00
Speedway	60-75	6 x 6	6	1,160.00
Globe	24	7 x 9	2	400.00
Automatic	37½	7½x 9	3	1,000.00
Automatic	18-21	5½x 7	3	660.00
Eagle	24	6 x 7	3	460.00
Fairbanks-Morse	20	6 x 6½	2	460.00
Wolverine	16	6½x 7	2	800.00
Rockaway	40	6 x 6¼	4	500.00
New York	40	5½x 6	4	560.00
Trebert	24-30	5½x 6	4	600.00
Trebert	16-20	4½x 5	4	380.00
20th Century	12	5¼x 6	2	300.00
Hall	12	5¼x 6	2	300.00
Buffalo	24	5½x 6	4	460.00
Buffalo	16	4¼x 5	4	300.00
Jager	40	5¼x 5½	6	600.00
Baldwin	24	5½x 6½	3	400.00
Brown Talbot	15	4 x 4¼	3	250.00

Above Engines have full outfit as Propeller—High tension Ignition—carbureter—oiling system—Reverse gear—complete from Flywheel to coupling. All above Engines are of the 4 cycle type. 2 cycle reversible type Standard made Engines. Complete from Flywheel to coupling.

24	H.P. Lathrop, 2 cyl.	$375.00
20	H.P. Lathrop, 2 cyl.	360.00
16	H.P. Lathrop, 2 cyl.	275.00
14	H.P. Lathrop, 2 cyl.	260.00
8	H.P. Lathrop, 1 cyl.	125.00
	2 cycle reversible type.	
6	H.P. Lathrop	100.00
	2 cylinder 2 cycle.	
15	H.P. Knox	240.00
11	H.P. Bridgeport	175.00
9	H.P. Bridgeport	168.00
8	H.P. Auto Marine	100.00
8	H.P. Ferro	110.00
8	H.P. Barker	136.00
15	H.P. Victor	225.00
11	H.P. Gray	190.00
10	H.P. Brown, New	245.00
12	H.P. Universal	200.00
	3 cylinder 2 cycle	
21	H.P. Fairbanks	260.00
17½	H.P. Ferro	190.00
17½	H.P. Ferro	150.00
18	H.P. Fairbanks	210.00
	One cylinder	
7½	H.P. Mianus	110.00
5	H.P. Mianus	76.00
3	H.P. Mianus	56.00
5	H.P. Fairbanks	60.00
6½	Bridgeport	100.00
4	H.P. Palmer	60.00
1	H.P. Ball	35.00
9	H.P. Bridgeport Hoist	200.00
20	H.P. Mianus, 2 cyl.	360.00
15	H.P. Mianus, 2 cyl.	260.00
12	H.P. Mianus 2 cyl.	240.00
10	H.P. Mianus, 2 cyl.	200.00
8	H.P. Mianus, 2 cyl., Old style	140.00

One cyl. Two cycle		Two cyl. Two cycle		Four cycle	
3 H.P. Ferro	$35.	12 H.P. Gray and gear	$175.	6 H.P. One cyl. Imperial new	$155.
9 H.P. Fox	75.	Three cyl. Two cycle		6 H.P. 3 cyl. Dunn new.	85.
10 H.P. Truscott	85.	8 H.P. La Crosse	$65.	6 H.P. 4 cyl. Lamb and gear	155.
10 H.P. Gray 6x6	115.	15 H.P. Van Epps	135.	12 H.P. 4 cyl. Buffalo and gear	185.
Two cyl. Two cycle		18 H.P. Ferro	165.	24 H.P. 4 cyl. Doman and gear, 5x6	395.
6 H.P. Eagle	$75.	18 H.P. Fairbanks-Morse	185.		
8 H.P. Pelton and gear	105.	35 H.P. Vim	175.		
8 H.P. Roberts and gear	135.	24 H.P. 4 cyl. Fairbanks-Morse and gear	315.		

And many others, also large line auto, tractor, stationary engines, supplies, low prices. We trade engines and buy them. What have you?
THE BADGER MOTOR COMPANY, Milwaukee, Wis.

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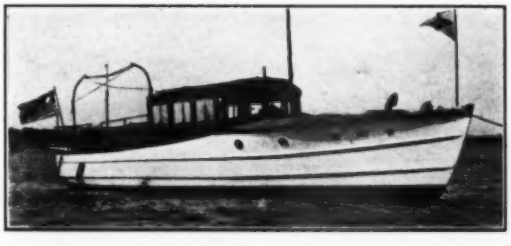
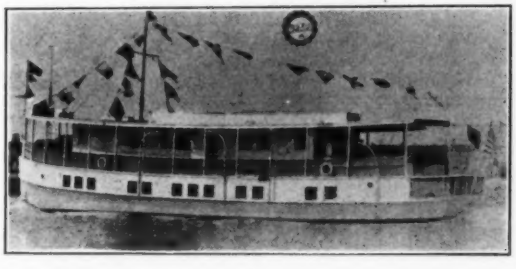
Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

For Sale—"San Toy 11"—A handsome, comfortable, able cruising yacht, being used every day and in first class condition. Hull—Built in 1907, 72 ft. x 13 ft. 6 in. x 4. Double planked. Copper fastened. Mahogany finish above and below. Teakwood deck. Bath and steam heat. Two berths and toilet for crew. Forward cabin. Double berth. Double transom. Dresser, many drawers, etc. Private toilet. Two single staterooms. Main cabin aft with two pullman berths and toilet. Engine—Six cylinder Standard. Put in in 1917. 8½ inch by 11 bore and stroke. Air start and reverse. Electric lighting. Auxiliary engine for lights and air compressor. Water tank 260 gallons. Gas tank 220 gallons. Maximum 400 revolutions 13 to 14 miles. Cruising speed at 11½ to 12 miles. 330 revolutions on 11 or 12 gallons of gas. Fittings—Complete. Brass binnacle and searchlight. Awnings and covers. Two anchors, chains, cable, ropes, etc. One cedar rowing tender. One mahogany trimmed motor tender. Mattresses, blankets, pillows, dishes, cooking utensils, glass ware and cutlery. Ship's clock strikes bells and connected to the bell forward. Four wicker chairs, wicker table. Six folding mahogany chairs for after cabin. Will be sold at a very low price before hauling-up time, October 15th. Address owner, 16 Coolidge Street, Brookline, Mass.



Enclosed bridge deck cruiser WESTWARD 38 ft. x 9 ft. 8 in. x 3 ft. 6 in. Stateroom and toilet forward, cabin and galley aft, three extension spring berths, 24 H.P. Automatic engine and tanks under deck house with hinged hatches over, finish oak and mahogany. Unique comfort and all controls in deck house. Able, well found, in commission, fine condition. Owner's family of three has lived aboard last two summers. Just bought larger boat. Price $3,750. At New Rochelle. Address Owner, No. 2 Lafayette Street, New Rochelle, N. Y.



No. 3252—For Sale—Twin-screw gasoline houseboat; 75 x 17 x 3.6 ft. Speed 9 miles. Two 4 cyl. 25 H.P. motors, thoroughly overhauled 1920. Roomy accommodations include 2 double and 2 single staterooms; large deck house containing main and dining saloons. Two baths and three toilets, large galley, etc. Located Florida. Price attractive. Further particulars from Cox & Stevens, 15 William Street, New York.

Wanted—To buy a used, modern cruising house boat or a cruiser about 50 ft. length. Equipped and ready to deliver at Tampa, Florida in November. Give full particulars. Address E. R. Trippe, Prince Albert, Saskatchewan.

Build your own Hydro! "Jazz-Baby," Special, 14 ft., "Tad-Pole," 15 ft., "Minnow," 16 ft., "Jazz," 19 ft. Blue prints, 65c. 2 for $1.00. "Hi-Ball," 22 ft., $1.00. Address "Engineer," No. 768 Barrett Ave., Louisville, Ky.

MACHINIST — Thoroughly acquainted with the manufacture and operation of marine gasoline engines, experienced in shop work; also familiar with carburetors, magnetos, reverse gears, etc. The Elco Works, Avenue A, Bayonne, N. J.

For Sale: A 40 ft. raised deck cruiser complete to the minutest detail with every possible convenience. Double stateroom and saloon sleeping five or six. Price $3,000. Cannot be duplicated for double. For complete description address Yachting, c/o Motor Boating.

BOAT BUILDERS AND INBOARD JOINERS WANTED. APPLY FREDERIC S. NOCK, EAST GREENWICH, R. I.

Wanted—A heavy duty marine motor, 30 to 40 H.P.—4 cycle, Sterling, Buffalo, Clay, Frisco, Standard or other high grade make. Motor must be in perfect condition. F. Hurting, 506 E. 55th St., N. Y. C.

For Sale—25 ft. x 5½ ft. speed type, teak runabout, 4-cylinder, 4-cycle. Speedway motor, 18 H.P. Fully equipped and with automobile top. Speed—12 to 15 miles per hour. Built as yacht tender. Cost—$5,000.00 to duplicate. Consider reasonable offer. W. E. Barton, 1056 Woolworth Bldg., N. Y. City.

For Sale—35 foot speed boat, "Grayling". Cedar hull, mahogany decks, natural finish, 150-180 H.P. Sterling 8 cylinder motor, self starter; electric lights. Speed about 30 miles per hour. Won second prize Championship Races Lake George, August 26th, 1920. Must sell at once. Have purchased a cruiser. Asking $3,000.00; make offer. J. A. Mellish, St. Hubert Hotel, 120 West 57th St., New York City.

SAL

SPEEDOMETER for MOTOR and SAIL YACHTS

IS THE ONLY KNOWN DEVICE FOR DETERMINING THE EXACT SPEED OF ANY BOAT. ASK FOR INFORMATION

HAMILTON & HANSELL, Inc., 13 Park Row, N. Y. City

NAVAL ARCHITECTS & YACHT BROKERS

Thomas D. Bowes, M. E.
NAVAL ARCHITECT AND ENGINEER
Offices:
Lafayette Bldg., Chestnut and Fifth Sts.
PHILADELPHIA, PA.

COX & STEVENS
Engineers and Naval Architects
Yacht Brokers
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TELEPHONE 1375 BROAD

FREDERICK K. LORD
NAVAL ARCHITECT
120 BROADWAY NEW YORK

CHARLES D. MOWER
Designer of
SENSIBLE CRUISERS
POWER—SAIL—AUXILIARY
Twenty-five years' practical experience
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NEW YORK
2 Stone St.
Telephone
Bowling Green 6077

N. E. McCLELLAND & CO., Ltd.
NAVAL ARCHITECTS
YACHT BROKERS

STRONG & BEEKMAN
Yacht and Ship Brokers
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Yachts—all types, Sale or Charter; Commercial Vessels, Steamers, Sail and Auxiliaries; Plans, Specifications, New Construction.
Tel. Whitehall 537
Cable Address "Strobick-New York

Sixteen Years
Designing Experience
Specialty
110-Ft. Yacht "CONSUELO" Seagoing Yachts
J. MURRAY WATTS, N. A.
136 South Fourth St. Philadelphia
Phone: Lombard 2072

AVOID disaster by using a DIRIGO compass on that boat. All metals first class. No rubber gaskets ". vet. A very hard pivot and high-grade jewel. Navy degree circle on dial. Brass and mahogany binnacles. Also new course finder and bearing instrument. Send for descriptive catalog.
EUGENE M. SHERMAN
Box 2 Bellevue, Wash.

Fisher Trophy Race, Detroit

(*Continued from page* 13)

in runabout practice and the builders Ditchburn and Hacker carried out the ideas of the designers most ably.

The race itself was a dandy from start to finish. The spectators and officials were kept on their toes from start to finish, so exciting was the race. So close were the finishes at the end of each lap—there were 20 laps of 2½ miles to each heat—that the scorers had difficulty in keeping up with the pace set by the racers.

Snap Shot took the lead each day and for the first 20 miles it was as pretty a race as one could hope to see. Rainbow was seldom more than a few lengths behind Snap Shot and at times her bow would overlap Rainbow's stern. Invariably after holding the lead for about 20 miles Snap Shot would be forced to relinquish it in Rainbow's favor. After the latter took the lead she was never headed for a second time although should she have had engine trouble even for a few seconds duration the race would have been lost.

The twin-screw jobs—Comanche and Falcon III, were a disappointment. They didn't seem to have the necessary speed to put them into the lead. On the straightaway, they were fast but any advantage gained was always lost at the turns. When one of their two engines slowed up to any appreciable extent, it immediately had a very detrimental effect on the boat's speed. At times both Comanche and Falcon III were running on one engine while some adjustments were being made on the sister power plant.

The running of Dough Boy surprised everyone. This is a craft which is several years old and was supposed to be too slow and not in the same class as Comanche and Falcon III. On account of age, Doughboy was entered for her reliability. This feature she proved that she had, as her Hall Scott motor drove her around and around the course, 60 times to be exact, with clocklike regularity. Had it not been for the fact that the Sterling motors in the winners, Rainbow and Snap Shot were also the last word in reliability, Dough Boy would have surely won.

Rainbow, the winner, was the prettiest runner of all. This fact was remarked about by every one present and the clean sportsmanship of her owner and driver made Rainbow a decided favorite to win. Her hull was very light, weighing not over 800 pounds. However, strength was not sacrificed in the slightest as every detail had been worked out to give the maximum strength with the minimum of weight.

After each heat, the boats were taken in charge by the committee, the engine hoods sealed, and observer placed on board each boat and no repairs or adjustments allowed to be made until the boat was returned to the owner 10 minutes before the start of the next race.

Miss Miami, the 37 footer built by the Purdy Boat Company for Carl G. Fisher, was entered but on account of gear trouble she did not start. As was the case in the other hulls, Purdy had turned out a wonderful job in every particular for Mr. Fisher. However, the construction was more along cruiser lines than orthodox runabout practice. The new Allison motor with which Miss Miami was to be powered was not completed in time to be ready.

A complete summary of the results of the race will be found on page 94. (Note.) As the Fisher Race was held just at the time of going to press with the October issue of MoToR BoatinG, it was impossible to get a more complete story in this issue. However, there will be further facts illustrated in our November number.

Advertising Index will be found on page 110

Jordan Bros. Lumber Co.
Manufacturers
White Cedar Boat Boards and Cedar Products
Norfolk, - - Virginia

BRUNS, KIMBALL & CO., Inc.
153-5-9 West 15th St., New York City
Offer over 200 rebuilt engines, backed by a strict guarantee, at especially attractive prices. List will be sent free for the asking. Your present engine will be taken in part payment for a new Sterling, Kermath, Gray-Prior, Wolverine, Doman, 4 cycle; Hartford and Arrow, 2 cycle. Write for offer.

REBUILT ENGINES
Paragon Reverse Gears
At 30 Per Cent. Discount
C. B. HAMBLEN & CO.
100 Atlantic Ave. Boston, Mass.

CAPE COD 20-FT. DORY LAUNCH
The Safest little family boat built. Motor housed in.
Also
17' Sail Dory 14' Outboard Motor
16' Shallow Draft 10' Row Boat
17' Life Saving Dory 12' Row Boat
CAPE COD SHIPBUILDING CORPORATION
Builders of craft to 150' length, or 10' draft.
Winter Storage
367 Main St., Wareham, Mass.
New York Show Rooms, 412 Eighth Avenue, New York City

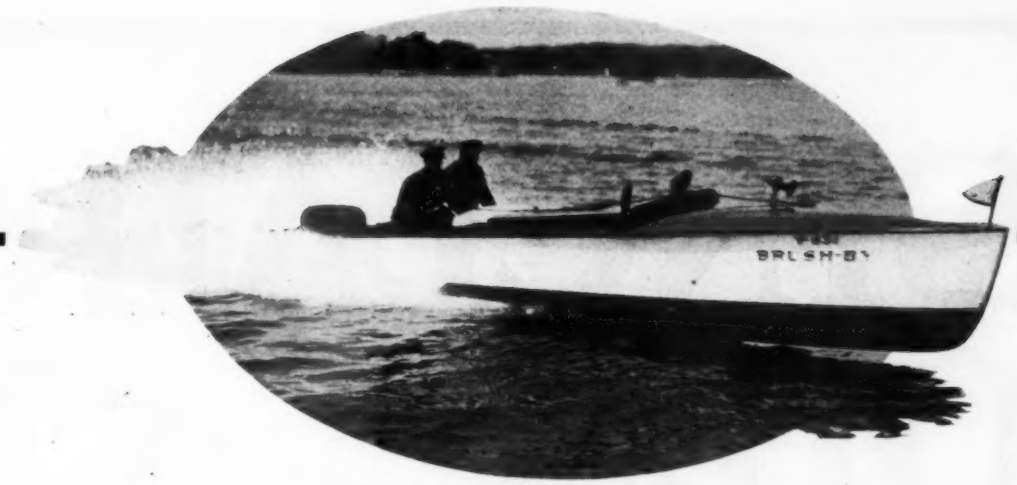
IMPROVED THERMEX SILENCER
Increases Revolutions, No Back Pressure!
Cannot clog, nor collect salt; water cannot flow back to cylinder. No heating, no odor. Used free or under water—adjustable discharge. Lightest, cheapest to install. Free booklet shows why. Send for it today.
CENTRAL MFG. CO.
158 Liverpool St. East Boston, Mass.

GIES REVERSE GEARS
RADIATE SATISFACTION
Five Models Write for Prices
GIES GEAR COMPANY
47 York Street East Detroit Michigan

Write for Bulletin No 159
"GOLDEN GLOW" SEARCHLIGHTS
Electric Service Supplies Company

EVINRUDE
Detachable Rowboat and Canoe Motors are standard—Built-In Flywheel Magneto Automatic Reverse
EVINRUDE MOTOR COMPANY

SPRAY-HOODS
BOAT CUSHIONS
ATLANTIC-PACIFIC MFG. CO.
124 Atlantic Ave. Brooklyn, N. Y.



"Brush By" owned by J. B. Sullivan, Thousand Island Park, N. Y. Built by Reliance Motor Boat Co., New York City.

BRUSH BY

STILL another of those fast "Peppy", reliable runabouts powered with one of the famous record breaking Hall-Scott six cylinder 200 H.P. Marine engines.

"Brush By", not only won the displacement championship of the St. Lawrence River, but also created a new displacement record by running the 20 miles at the rate of 38.1 miles an hour.

Hall-Scott Marine engines also powered the winners of second and third places, all three boats shattering the official displacement record for the distance, and giving further proof of the oft demonstrated superiority of Hall-Scott Marine engines.

The marine engine, that is the choice of famous automotive engineers with unlimited technical knowledge at their disposal, is the engine for your boat.

Built in two sizes only

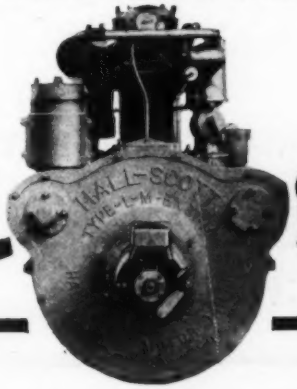
4 cylinders, 125 H.P. Weight 1070 lbs.
6 cylinders, 200 H.P. Weight 1290 lbs.

Write us about your boat and we will gladly send you full information about your engine.

HALL-SCOTT MOTOR CAR CO., INC.

Eastern Sales & Service Branch—37-39 Associated Service Bldg.

Factory: Berkeley, Calif. **BUFFALO, N. Y.**



HALL SCOTT

SINCLAIR OILS WIN AGAIN

1920 GOLD CUP CHAMPIONSHIP

and the

WORLD'S SPEED RECORD

Averaging 70.4 miles per hour, the "Miss America" won the 1920 Gold Cup Race at Detroit — the motor boat championship of America.

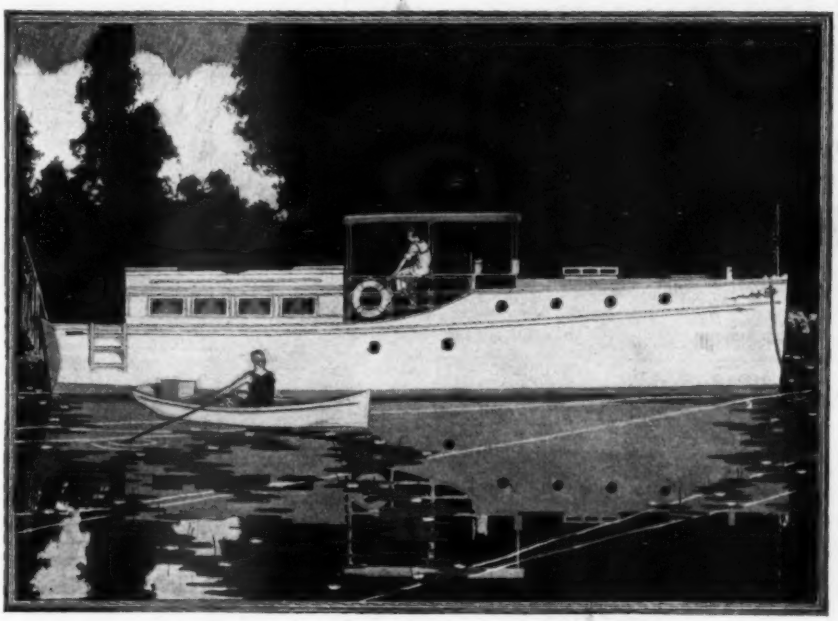
"Miss America" also broke all world's motor boat speed records from one to thirty miles. In the 1 mile championship trials for the Lake George Trophy Miss America skimmed through the waters at a speed of 77.85 miles per hour—the fastest time ever made by a motor boat.

"Miss America" used Sinclair Gasoline and Sinclair Motor Oils.

"LET THE CHOICE OF CHAMPIONS BE YOUR CHOICE"

SINCLAIR REFINING COMPANY
CHICAGO

Advertising Index will be found on page 110



The new Burger 36-ft. Cruiser—

MOWER DESIGNED—BURGER BUILT

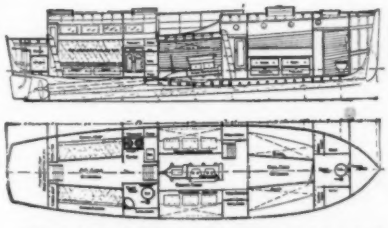
—the veteran yachtsman's choice

It has been designed to incorporate the master recommendations, adaptable to a cruiser of this size, of recognized authorities in the motor-cruiser world.

Then—thirty years of experience in the building of high grade boats has been concentrated on the standardization of this single type.

The result—as was anticipated and planned—is a cruiser offering more "cruisability" for its size and at its cost than had been considered possible previously.

By "cruisability" we mean the comfort of commodious arrangement coupled with structural perfection and seaworthy and satisfactory performance expected only in a larger and more expensive craft. This Burger Cruiser is now being produced in quantity and is ready for immediate delivery.



A large bridge deck where all may gather; all controls on bridge deck. Two light and airy cabins with full head room—two toilets. Engine room well ventilated, power plant completely accessible, full head room at forward end. Fully equipped galley. Power plant a Scripps Model D four-cylinder, four-cycle motor; 35 H. P. electric starting and lighting system.

Speed 11 miles per hour. Marine plumbing, fittings and furnishings of the highest grade. The price, $4,950, includes complete cruising equipment. Throughout, the boat is superior in every manner to any cruiser of similar character at its price. Thoroughly, substantially and KNOWINGLY constructed. A cruiser of long life, beautiful appearance, comfortable accommodations and highly satisfactory performance.

We want you to see what selective design based upon average requirements instead of arbitrary design has given to the motor-boating field.

May we send you the complete specifications and photographs?

BURGER BOAT COMPANY, MANITOWOC, WISCONSIN

BURGER

BOATS BEAUTIFUL

AUTOMATIC EXTENSION REEL
For Electric Lamps
Pat. Jan. 30, 1917. Approved by the Underwriters. An ideal fixture for motorboats, yachts, boat houses, garages, machine shops, etc. Enables you to use light anywhere up to 35 ft. from fixture. Automatic lock holds at any distance. Automatically rewinds cord when finished. Write for prices.
THE CINCINNATI SPECIALTY MFG. CO., Inc.
1920 Powers Street Cincinnati, Ohio

"Reliance" Steering Gears
AND
Deck Controls
30 Styles
The Proper Wheel for every type of boat

Write for Literature
W. S. HALL CO.
Rochester, N. Y.

Valve-in-the-Head 40 H.P. Medium Heavy Duty Marine Motor
Price $1500 f.o.b. factory. Complete with double ignition, electric starter and reverse gear. Write for complete information and catalogue.
KNOX MOTORS ASSOCIATES
Springfield, Mass.

Nautical Instruments
underlighted Compasses, Course Protectors, Bearing Finders. Every navigator should have them. Send for interesting catalogue. Address Box 45.
Marine Compass Company
Bryantville, Mass.

Miller Marine Engines
GASOLINE OR KEROSENE
Sold for nearly twenty years solely on the basis of reliability and efficiency. We offer you a Miller motor to meet your requirements, be it for a small boat, a heavy sea-going cruiser or work boat. *TEN MODELS. Each one designed for a specific service. Write today for particulars*
MILLER ENGINE COMPANY
2329-2331 No. Tallman Ave. Chicago, Illinois

Pressure

Oil Stoves
Made in one, two, three or more burners. Complete catalogue on application to manufacturers.
WILLIAM H OTTO METAL GOODS CORP.
401 St. Pauls Ave. Jersey City, N. J.

Roebling Launch Steering Cable
Metallic Cord Center

Strong, Reliable, Durable
Send for Folder No. A-375
JOHN A. ROEBLING'S SONS CO., Trenton, N. J.

4-Cycle Engines of Quality
Six sizes—light, medium, and medium heavy duty. 3 h.p. to 20 h.p.—1 to 2 cylinders. Gasoline or kerosene. Suitable for workboats, fish skiffs, sampans, pleasure boats, etc. Working parts on lightweight models, interchangeable with Ford engine parts.
Live agents wanted in all parts of the world
SEATTLE-STANDARD ENGINE MFG. CO.
Seattle, U. S. A.

Hunting Boats, Canoes, Rowboats, Fishboats and Motor Boats. Catalog Free. Save Money. Order by Mail. Please state what you are interested in.
THOMPSON BROS. BOAT MFG. CO.
1907 Ellis Avenue Peshtigo, Wis.

Miss Toronto Wins on St. Lawrence

(*Continued from page* 17)

Both ladies have had many fast rides in motor boats but none that approached that of Miss Toronto, either in speed or comfort, considering the circumstances.

In the racing events, Miss Toronto's real competitor was Arab IV, owned by Commodore Ralph Sidway of the Buffalo Launch Club and representing the Thousand Islands Yacht Club. Arab IV is the same hull which was famous for her diving stunts at Toronto last year when she was powered with a Curtiss motor. Pedersen of Buffalo was given an order by Commodore Sidway nearly a year ago for a new hull to be known as Arab V and which he hoped would be an improvement over Arab IV. A 12-cylinder Liberty motor was purchased for the new Arab. As months went by during the winter and spring without any appreciable work being accomplished on Arab, Commodore Sidway gave up hope of having his new boat completed in time to race at the Thousand Islands. Therefore, as a last resort he decided to install his new motor in the old hull of Arab IV and take his chances at success, which the Commodore knew would be none too good. His perseverance

(*Continued on page* 54)

Champ and Falcon Win

New York's most successful motor boat racing season came to a close on September 19th, with the ocean race sanctioned by the American Power-Boat Association which took the racers on a 45 mile outside course on the lower bay, starting from a mark near Manhattan Beach, along the Long Island shore around a buoy off Jones' Inlet, thence around Ambrose and Scotland Lightships back to the starting mark.

Twenty-four curisers which could qualify as such under the American Power-Boat Association rules started, racing in two classes according to rating. Champ, owned by William Bond and powered with a Sterling motor won first prize in Class A and Falcon, owned by P. W. Johns of the Hudson River Yacht Club, won first honors in Class B for cruisers rating less than 35.5. Champ also won the time prize as well as the trophy offered by MoToR BoatinG.

Both the win of Champ and that of Falcon were very popular ones as both of these boats have been entered in nearly every racing event in New York waters during the present season.

The summary follows:

Ocean Race—Course, 45 Miles—Start 10 A. M.

Class A

Yacht	Owner	Elapsed Time H. M. S.	Corrected Time H. M. S.
Champ	W. Bond	5:01:18	4:36:18
Madeline III	O. Reilly	5:14:47	4:50:31
J. M.	J. M. Powers	5:08:28	4:51:54
Gyro III	J. A. Davis	5:17:56	5:11:25
Renslif	F. A. Filsner	5:11:40	5:11:49
Blue Bird	H. E. Childs	5:43:09	5:16:56
Nierbo	C. J. O'Brien	5:45:18	5:20:00
Minnie B	E. V. Barton	6:02:27	5:21:39
Idolhour	A. W. Middleton	6:05:16	5:21:57
Keewaydin	C. G. Thomas	6:05:42	5:23:04
Telcot	N.J.Vanderminden	5:49:40	5:26:08
Ruth II	W. T. Dodd	5:49:51	5:45:58
Wimpus	P. G. Collins	Disabled	
Python	R. Geiser	Disabled	

Class B

Yacht	Owner	Elapsed Time H. M. S.	Corrected Time H. M. S.
Falcon	P. W. Johns	5:53:17	5:40:47
Natalie II	A. Nelson, Jr.	5:51:13	5:46:01
Comrade	W. Irwin	5:58:18	5:46:39
Viva	A. Pettit	5:50:21	5:49:02
Adelew	F. R. Solomon	5:58:23	5:49:13
Wileaway	L. Ettinger	6:11:37	5:50:13
Kodak	R. J. Haslinger	6:07:43	5:52:17
Lesbia	W. C. Hambler	6:31:14	6:16:09
Ruthie II	F. Doebell	6:55:37	6:16:23
Marion B	T. McKee	6:45:00	6:25:58

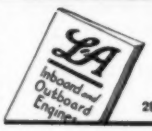
Advertising Index will be found on page 110

Universal Specialties
Lowest possible prices on all marine supplies.
Class 1 Outfit $6.00
UNIVERSAL MOTOR BOAT SUPPLY CO.
Atlantic Highlands, N. J.

Mullins Steel Boats Can't Sink
When you think of buying a boat, whether it be a 16-foot Runabout, a big 26-foot Auto Boat, or something in between — remember that Mullins Steel Boats are guaranteed for life. They cannot sink, leak, water-log, dry out or open at the seams — never require calking. Designed by America's foremost naval architects. More than 70,000 in use. Big catalog of steel or wooden motor boats, rowboats or canoes, on request.
The Mullins Body Corp., 691 Franklin St., Salem, O.

THE THOMAS LAUGHLIN CO.
Portland, Maine, U. S. A.
Marine Hardware
Sold by all progressive marine dealers.
Catalog sent free to dealers on request.

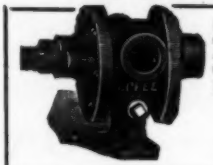
NO MOTOR BOAT COMPLETE WITHOUT
STEWART CUSTOMBILT NECESSITIES
SEE OUR AD IN NEXT MONTH'S ISSUE

Get this LA Engine Book


— it gives valuable information about motor boat engines. It also describes the full line of L-A inboard and outboard motors and tells of the 30 days' free trial plan.
Write for your copy today.
LOCKWOOD-ASH MOTOR CO.
2007 Jackson St. Jackson Mich. (22)

Sootless SPARK PLUGS
Discriminating motorists, to escape the troubles of ordinary plugs, use Sootless Spark Plugs. Mica insulated; brass jackets. Price $1.50—*the cheapest plug in the long run.* Send for booklet. Dealers or mail.
OAKES & DOW CO.
308 Atlantic Avenue Boston, Mass.

The Great Two-Cylinder
KOBAN
ROWBOAT MOTOR
The only vibrationless rowboat motor. Write for new catalogue.
KOBAN MFG. CO.
248 South Water St., Milwaukee, Wis.


If you want good circulation on your Automobile, Launch or Motor Boat, use a
LOBEE PUMP
Lobee Pump & Machinery Co.
57 Bridge Street, Buffalo, N. Y.

Records Speak for Themselves

Miss America

winner of the Harmsworth trophy and Gold Cup, is a SMITH-BUILT boat, powered with SMITH MARINE "TWIN-SIX" engines which easily won over all American and European contenders powered with the best European and U. S. made engines. To defeat these products of skilled foreign mechanics it required the highest efficiency, extreme power for weight and reliability. This record speaks for itself.

SMITH MARINE "TWIN SIX" engines in combination with SMITH-BUILT hulls have proven their supremacy over all competitors. They have stood the test.

Boats equipped with SMITH MARINE "TWIN SIX" engines are: Miss America, Miss Detroit V, Miss Toronto II, Miss Detroit II, Miss Detroit III, hydroplanes; Unique, Tallyho, Gar, Jr., Gar, Jr. II, Commander, express cruisers; Sure Cure, Miss Nassau, Heldena II, Pam, Emma K, Miss Los Angeles II, runabouts. These are the fastest boats in the world.

These engines are the lowest priced power plants per horsepower in the world.

Write for catalogues and descriptive matter on SMITH MARINE "TWIN SIX" engines, SMITH-BUILT Express cruisers, runabouts, and speedboats to the

SMITH MARINE "TWIN SIX"
WORLD'S CHAMPION MOTOR

"GAR" WOOD, owner of Miss America Says: "Smith Marine 'Twin Six' engines are superior to any marine engine in the world for hydroplanes, cruisers or runabouts."

C. C. Smith Boat & Engine Co.

Builders of Speed Boat Champions for Ten Straight Years

Algonac, Michigan.

Quayle Oil Engines
FOR MARINE SERVICE
COMMONWEALTH MOTORS CO.
326 W. Madison St. Dept. E-1 Chicago, Ill.

The Gordon Silencer and Under-Water Exhaust
With Fresh or Salt Water Fittings
F. O. B. Cleveland
$12.00
The Gordon Propeller & Mfg. Co.
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RITCHIE COMPASSES
For 70 years Ritchie Instruments have been the recognized Leaders in the Nautical Field. We have the right compass for every motor boat, cruiser or yacht. Write for catalog.
E. S. RITCHIE & SONS
Established 1850
110 Cypress Street Brookline, Mass.

Every Boat should be Fully Equipped with
EVER-WARM SAFETY SUITS
YOU CAN'T CHILL—YOU CAN'T DROWN
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Eight standard open-end wrenches, screw driver, bottle opener and alligator jaw.
—$1.00—
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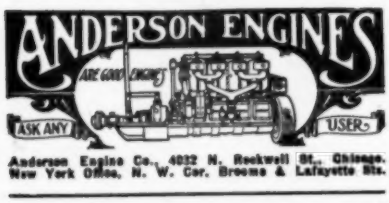

Anderson Engine Co., 4032 N. Rockwell St., Chicago.
New York Office, N. W. Cor. Broome & Lafayette Sts.

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You need every issue of this magazine, the year around, if you want to get the utmost pleasure from your boat.
Price, $3.00 a year
MoToR BoatinG has far more readers than any other boating magazine.

80-*Mile-an-Hour Boat*

(*Continued from page* 10)

Miss New Orleans is the old Miss Miami, formerly owned by Glenn Curtiss and used for experimental and exhibition purposes in the south. Her present power is a 12-cylinder Liberty-Curtiss motor.

Imp, another entrant, represented the Chicago Yacht Club. She is the old Oregon Kid and was entered by no other than E. B. Blakely, who acted as her helmsman. A Hall-Scott motor drove Imp at a good turn of speed, but she was hopelessly outclassed by the more powerful and modern hydros.

In the first heat Miss America, Miss Detroit V and Miss New Orleans started, but the last named boat failed to complete even one 5-mile laps. She hit something soon after the start and tore a big hole in her quarter and sank. However, she was soon raised and ready for the next heat. Miss America and Miss Detroit V gave a little exhibition all their own. First one would take the lead coming down the home stretch, then the other. The spectators enjoyed it immensely and thought they were watching a real race. Miss America came across the finish line two-fifths of a second in the lead. Both boats averaged about 60.9 miles per hour for the 30 miles.

In the second heat, besides Miss America and Miss Detroit V, Miss New Orleans and Imp were in the line up. This race also resolved itself into an exhibition between the two Wood boats with the advantage alternating between them. Finally Miss Detroit V won by one second at a speed of 56.7 miles per hour. Miss New Orleans finished ten minutes later with Imp four minutes behind. Miss New Orleans' speed was 43.2 miles per hour and Imp's 40.1.

Before the third heat was called on the next day Gar. Wood remarked that he was going to show the world every bit of speed in Miss America and show the world he did. It was expected that Gar would "let her out" on the first lap to establish a record, but he changed his mind after getting underway and "let her out" from start to finish. Miss Toronto also started and went at no mean speed herself, but almost all the interest seemed to be centered on Miss America, so fast did she open up a big gap between herself and Miss Detroit V, which on other days had been able to keep alongside, but not so in this race. The first 5-mile lap was timed at a speed of 68.8 miles per hour, the second at 70, the third at 70.6, the fourth at 71, the fifth at 71.4, the sixth at 70.5 miles per hour, and the speed for the entire 30 miles was 70 miles an hour flat. Miss America came within one second of making six laps while Miss Detroit V was making five.

Miss Toronto II finished second, averaging 60.4 miles an hour for 30 miles and doing her best 5-mile lap at a speed of 62.2, both world's records for a single screw boat. Miss Detroit V had to be content with third place and Miss New Orleans fourth.

Of course the Gold Cup went to Miss America with 18 points. Miss Detroit V received 16 points, Miss New Orleans 9 and Miss Toronto II and Imp 5 each.

A full record of all the races will be found on page 94.

Now For The Motor Boat Show

(*Continued from page* 7)

ber tenth and will continue for eight days. This December date is some two months earlier than the Motor Boat Show has ever been held in the past. The idea in planning the Show for so early in the winter is to allow the industry to prepare for its season's business early enough so that late deliveries will be out of the question. The manufacturers can also give more thought and time to the Show at this season of the year, as it will not come at a time when they are so busy. The weather should also be better in December than in February, so there should not be the transportation hold-ups that have occurred at recent shows.

FISHERMEN WILL RACE

William E. Gibb of the Frisbie Motor Co. has announced that his company will present a perpetual trophy to be raced for annually by the fishermen. The race quite naturally will be held out on the broad Atlantic under very attractive conditions which will be announced shortly.

Lidwina III Wins

Lidwina III, owned by Commodore C. B. Eagan, of Buffalo Launch Club, won the cabin cruiser handicap for the Sallan Trophy, finishing second in the final 22.5 mile heat, on Monday. The Lidwina III had 52 points to her credit. Gaddis' Pidando won the final heat, but did not have sufficient points for the first two stanzas to give her the cup.

Charley Cutting's 2 P. M., which was tied for the lead with the White Cap, did not get in the final heat, having burned out her magneto Sunday evening.

The final standing of the cruisers for the race follows:

Pos.—Boat—Club—Owner	—Points— 1st	2d	3d	Tot
1 Lidwina III, B. L. C., S. Egan	15	19	18	52
2 Tillamook, D. Y. C., Geo. Jerome	17	15	16	48
3 White Cap, T. Y. C., C. Peckham	19	16	12	*47
4 Cornelia II., C. Y. C., S. Szabo	14	18	15	*47
5 Pidando, D. Y. C., E. J. Gaddis	12	13	19	*44
6 Mauvol, D. Y. C., G. H. Voelkner	13	14	17	*44
7 Awandra, D. Y. C., J. J. Miller	16	11	14	41
8 Lilli Vesta, D. Y. C., T. F. A. Osius	11	12	13	36
9 2 P. M., D. Y. C., C. D. Cutting	18	17	..	35
10 Cresceus, D. Y. C., A. I. McLeod	10	..	..	10
11 Companion, D. Y. C., R. S. Gehlert	9	..	..	9

Wood Trophy Race

42.5 MILES

Boat	*Owner*	*Time 1st Heat*	*Time 2d Heat*
Gar, Jr., II	G. A. Wood	1:01:00	
Sure Cure	P. Strassburg	57:59	D. N. F.
Miss Nassau	C. F. Johnston	58:08	D. N. F.

Miss Toronto Wins

(*Continued from page* 52)

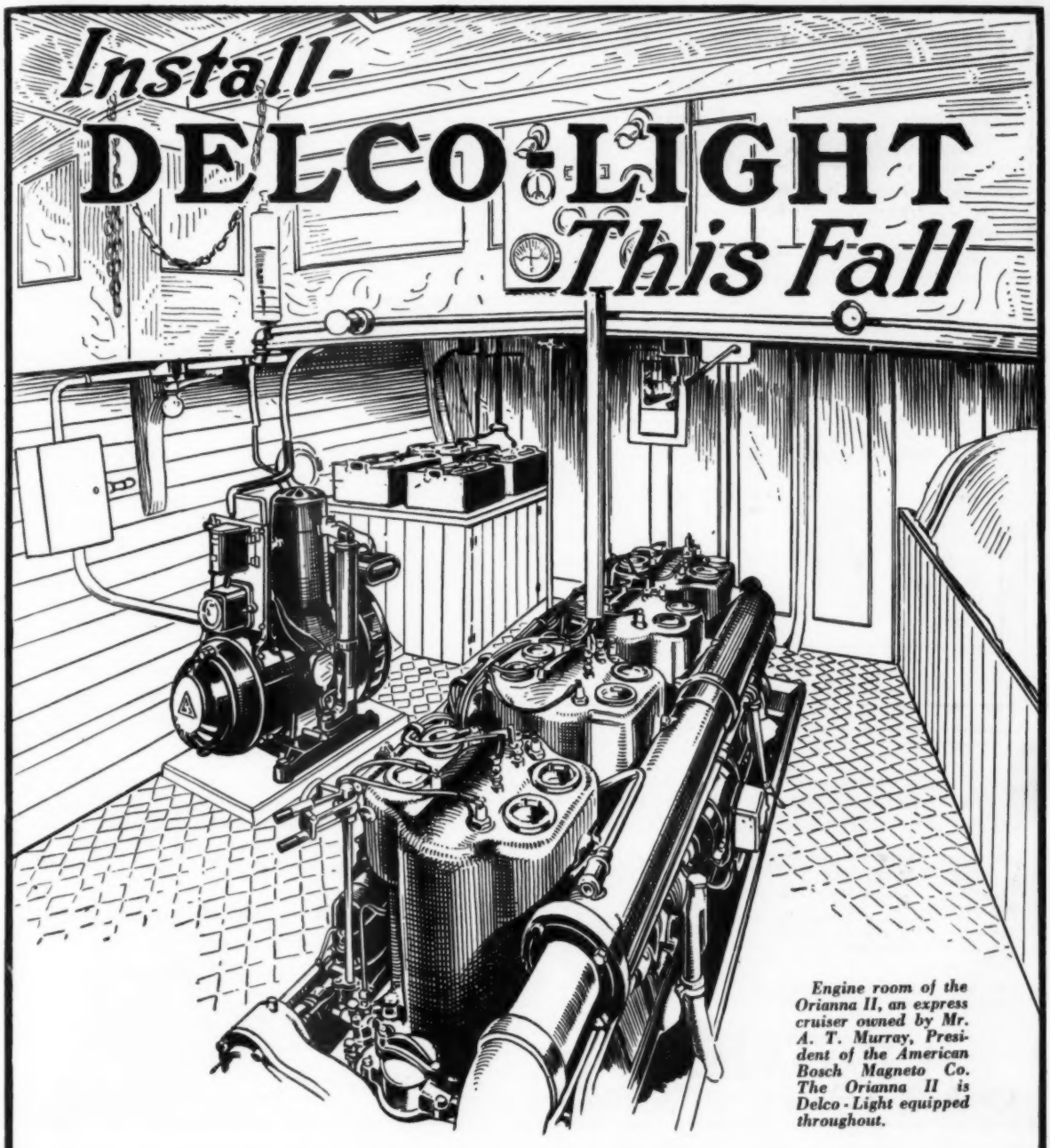
and good sportsmanship are to be admired, for the old hull was designed for a different power plant and seldom if ever does anything but failure result by overpowering an obsolete hull. (*Cont'd on page* 86)

P, H. Gill & Sons Forge and
Machine Works, Brooklyn, N. Y.

FINISHED CRANK SHAFTS
We are furnishing them to some of the leading marine engine builders. Carbon and Alloy Steel, Heat Treated to your own specifications. We grind all Pins and Bearings. Forged, machined, and finished complete in our own plant. Let us quote you.

Advertising Index will be found on page 110

Install-
DELCO-LIGHT
This Fall



Engine room of the Orianna II, an express cruiser owned by Mr. A. T. Murray, President of the American Bosch Magneto Co. The Orianna II is Delco-Light equipped throughout.

THIS Fall—when you put up your boat for the winter—is the time to install Delco-Light. The start of next season will find you with complete electric light and power service, ready to operate and independent of the main Engines.

Write for the "Motor Boat Booklet"

DELCO-LIGHT COMPANY
DAYTON, OHIO

Build Your Own Boat

—cruiser, work boat, open launch or row-boat — from our knock-down frames or patterns.

Save ½ to ¾ the Cost.

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The heat melts fuse. Contents of extinguisher is sprayed over motor, forming a blanket of fire-destroying gas.

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Long Island City - - - New York

Crockett's Spar Composition is the only varnish which will last a season on a deck

THE DAVID B. CROCKETT COMPANY
Bridgeport, Conn.
The Bissell Varnish Company, *Successor*

GEARS

Bevel gears,—spur, worm, spiral, mitre, internal, elliptical gears—any type made to your specifications. We are gear specialists and have special facilities for cutting all kinds of gears. Accuracy unequalled, quality the best.

Send blueprints today for quotations.

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A Hand Tool Producing Accurate Results That Surpass an Expensive Power Driven Machine

Adjustable on all types of motors.
One simple operation for adjustment.
Guaranteed accuracy to one-quarter thousandths of an inch.
Can be operated without removing shaft from engine.
A Peters' Crankshaft Grinder will true egg-shaped crank pins in one-fifth the time ordinarily required by any other method.
Price, $75.00.

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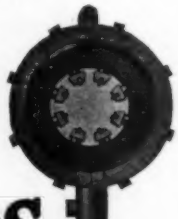
Widener Building Philadelphia, Pa.



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and save 2/3 the cost
By the BROOKS K. D. SYSTEM

Brooks Boats are handsome, seaworthy, up-to-date in design and easy to build. We also build complete boats.

The Brooks Guarantee:
Your Money Back if You Are Not Satisfied
Send for catalogue showing all models.

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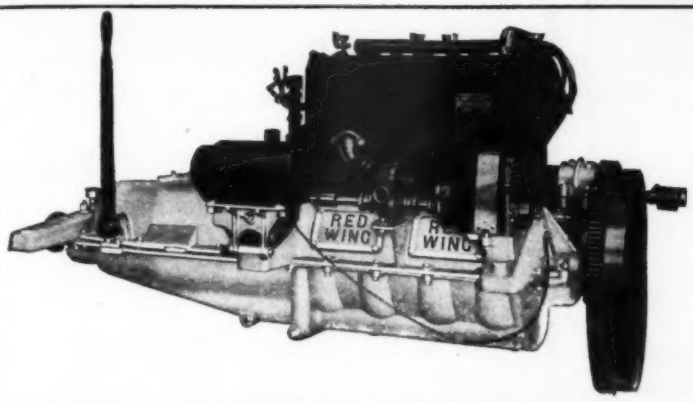

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THE MOTOR WITH POWER TO SPARE

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The ideal waste for motor boat users, automobilists, and for home engines and workshops.

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MASCO MOTOR WASTE—DECK MOPS—CLEANING AND POLISHING CLOTHS—YACHT CAULKING AND PACKING

THE JOHNSON MARINE REVERSE GEAR

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Run Your Boat on Kerosene

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Fits any 1" to 3" carburetor. Perfect combustion—no waste, smoke, or smell. Greater flexibility and mileage—less carbon. Fuel costs greatly reduced. Send for details.

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meet all U. S. Government specifications and receive the highest classifications of American Bureau of Shipping and Lloyds Register of Shipping.

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VISIBLE GASOLINE FILTER

A Positive Automatic Chamois Filter

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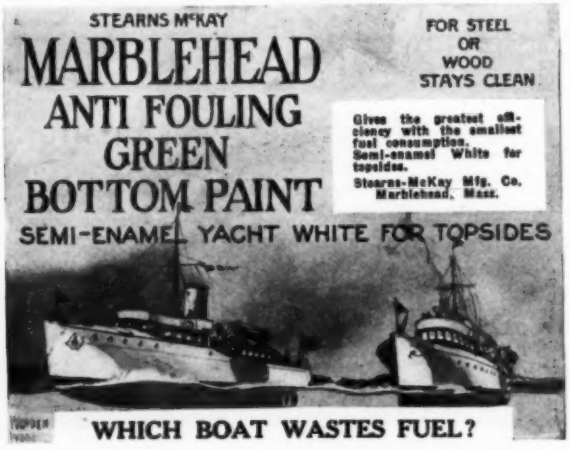

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Fuel: Low gravity oils in their natural state.

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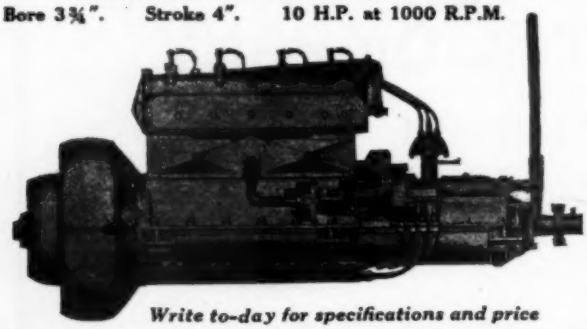

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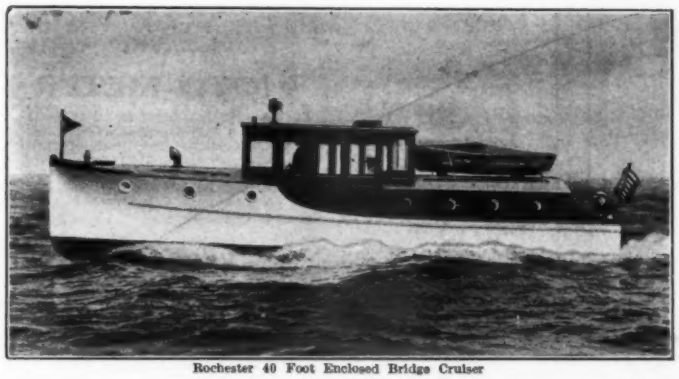

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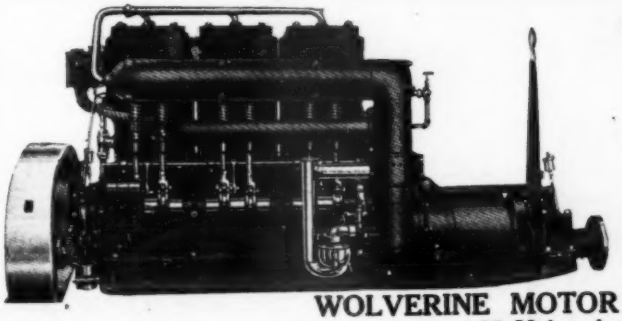

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BOYCE MOTO-METER

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THREE B

BBB

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Advertising Index will be found on page 110

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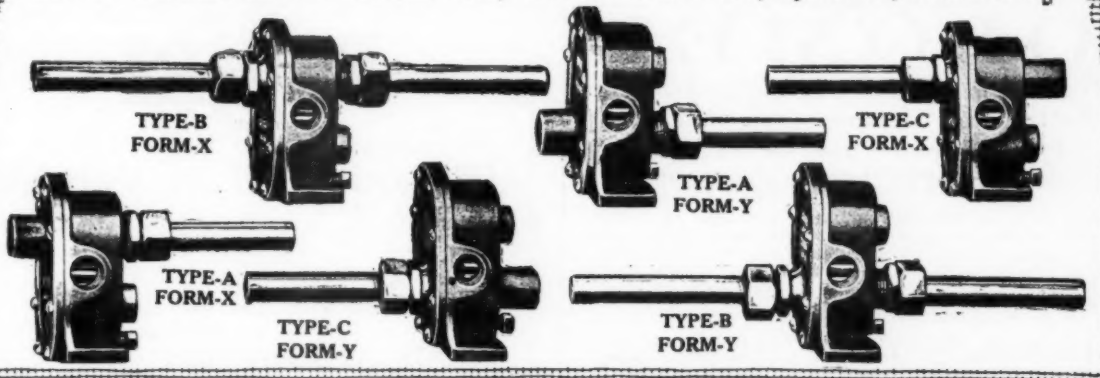

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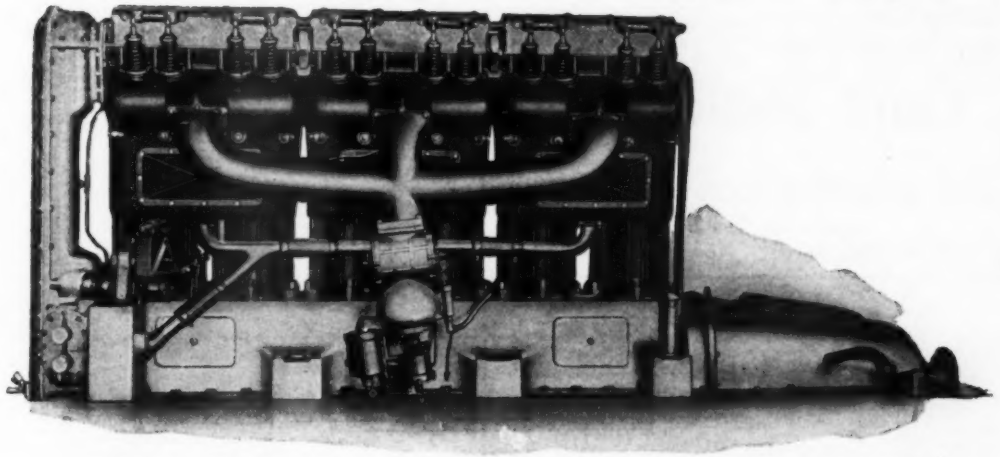

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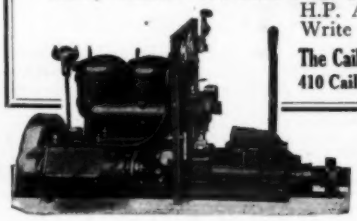

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A Superior Oil and Water Stop
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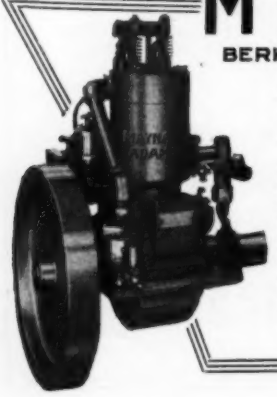


A Real Engine for Real Boats

A 3½ H.P. four-cycle engine that is not a toy but a high grade and highly developed power plant for skiffs, dories, tenders, small workboats, etc. All parts subject to wear are replaceable with FORD parts. Immediate deliveries.

DEALERS: Add this big seller to your line. Write for terms.

MAYNARD-ADAMS ENGINE CO.
Eighth and Delaware Streets
Berkeley, California

NILSON BUILT

means the highest quality of Workmanship and Finish. "Honest Boats —Honestly Built."

Let us figure with you.

The Nilson Yacht Building Co., Inc.
Spring Garden Baltimore, Md.

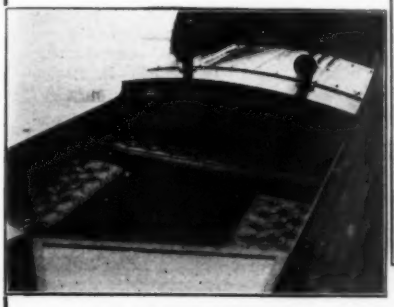
Advertising Index will be found on page 110

Inverted V-Bottom and Surface Propeller Boats.

SEA SLED

Trade Mark Reg. U. S. Pat. Off.

Hickman Patents in all countries.



Comfort ***Speed*** ***Power***

A new 32-foot planing type Sea Sled runabout, powered with two GR-6, 225 H.P. Sterling engines. Speed 45 miles per hour.

Sea Sleds meet all requirements. Designs range from the moderate priced, moderate speed, and moderate powered displacement type to the high powered, high speed planing Sea Sleds. Both types combine the advantages of shoal draft, non-fouling surface propellers, and the inverted V-bottom.

Write:

THE SEA SLED COMPANY
Boston, Massachusetts

THE BOEING AIRPLANE CO.
Seattle, Washington

LAWRENCE PATENT PROCESS

Defects in castings as well as scores are repaired perfectly by this process.

SCORED CYLINDERS REPAIRED PERFECTLY

SCORED cylinders can be repaired as good as new at comparatively small cost by the Lawrence Patent Process. New cylinder castings which show slight defects in the bore can be made as perfect as a flawless casting. Cracked water jackets are repaired perfectly and permanently.

Our expert workmen electrically fuse a silver nickel alloy into the defects or scores. The bore of the cylinder is not enlarged; the standard piston and rings fit the same as when new. The compression is restored and our work is *guaranteed for the life of the motor.* Positively cannot warp or harm the cylinders in any way because the cylinder is not heated.

Repairs by the Lawrence Patent Process are quick, inexpensive, uniform and absolutely permanent. Our plants give 24-hour service.

Write us today for quotation on your work, stating size of cylinder and size of score or defect, or if you are in a hurry, ship your cylinders at once to our nearest service branch.

L. LAWRENCE & CO., Established 1862 **292 HALSEY ST. NEWARK, N. J.**

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Los Angeles—1039 S. Grand Ave.
Milwaukee—18 Martin St.
Minneapolis—14 N. 9th St.
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A few good territories for licensees still open
Inquire at our License Office, Woolworth Building, New York City

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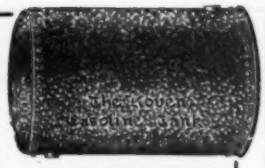
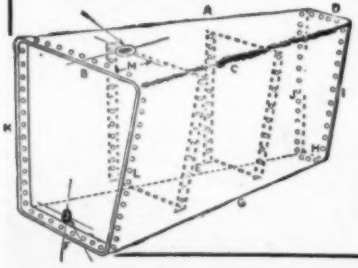
The Lawrence Process is covered by broad patents in the United States, Canada, England, France, Italy and other countries. Infringers will be prosecuted to the full extent of the law.

Gasoline Tanks, Air Whistle Tanks, Mufflers, Stacks, Special Plate and Sheet Metal Work for Pleasure Boats.





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The most seaworthy motor cruisers of their size ever built. If you want real pleasure at the lowest cost and with the utmost safety you should own one of these famous Seabright boats. We also build Work Boats, Ship Tenders, Life Boats, Surf Boats, etc.

Write today for prices

THE BANFIELD BOAT AND LAUNCH WORKS

Office and Works:
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Real Service to Our Customers

Tell us what you need. Be it large or small your inquiry will receive individual attention.

Honest Goods at Honest Prices. Anything for a boat or ship.

BOSTON MARINE HARDWARE CO
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Berling Magneto
WORTH MORE DOES MORE

ERICSSON MANUFACTURING CO.
BUFFALO, N. Y.

SPARKO-GAP $372 PROFIT IN 17 DAYS from
Government - Approved Automobile Accessory

This is the opportunity of a life-time to build up an automobile business of your own. Exclusive territory, no investment required. Write today without fail.

Mr. C. J. Weeks, 2139 Lydia Ave., Jacksonville, Fla., easily made this money by selling Sparko-Gaps!

$100 in Less Than One Week

Irving Laighton, Vineland, N. J., reaped this harvest by selling Sparko-Gaps! George A. Norton of Vernon, N. Y., earns big money selling Sparko-Gaps! Mr. E. Schuster of Brooklyn, N. Y., sold eighty the first day!

SPARKO-GAP

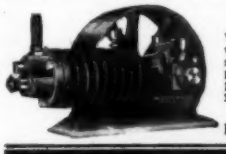
This is what it is and what it does. A tiny device that you fasten to the top of the spark plug. It increases engine efficiency 37 per cent. The only device to intensify spark. Approved by the United States Government. Thousands of Sparko-Gaps being sold every day. Large guaranteed profits.

Address Dept. M. B.

SPARKO-GAP CO. 54 WEST 39th STREET NEW YORK, N. Y.

ZUNDEL

This 6-volt Marine Horn combines distinctive marine appearance with a coarse heavy tone. The horn is of the vibrator type, with a very small current consumption; non-arcing, black enamel face, highly polished brass projector for salt water use. 9" high, 4" wide at base, weighs 2½ lbs.
Price $10.50



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Will work in either horizontal or vertical position. Guaranteed pressure, 175 lbs. to the sq. in. Capacity at 450 R.P.M., 1⅛ cu. ft. per minute. Operates by belt from flywheel.

44 WHITEHALL STREET
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BOAT SUPPLIES

The Michigan Reversible Propeller Wheel

We also manufacture Universal Joints, Couplings, Stern and Thrust Bearings, Ball Races, Power Bilge Pumps.

Don't take up valuable room in your boat with a cumbersome and troublesome reverse gear.

With a Michigan Reversible Propeller on your boat you are free to navigate without danger of collisions and with the same safety as with a reverse gear costing many times more. Besides this you are saved the annoyance of repairs and break-downs so often occurring with a reverse gear.

Michigan Propeller Wheels are designed and constructed for service and results.

A propeller for your every need.

Write to-day for information.

MICHIGAN WHEEL COMPANY
C. J. LITSCHER, Pres.
GRAND RAPIDS 1240 Monroe Ave. MICHIGAN

Advertising Index will be found on page 110

The Economy of Steady Power

In small craft, especially, a pounding, throbbing motor is a poor power investment. It spells shorter life for both motor and boat.

The steadiness with which the Doman delivers its power is *one* of the reasons for its long life and low upkeep — oversize water jackets, great bronze-backed bearings, and giant valves are others.

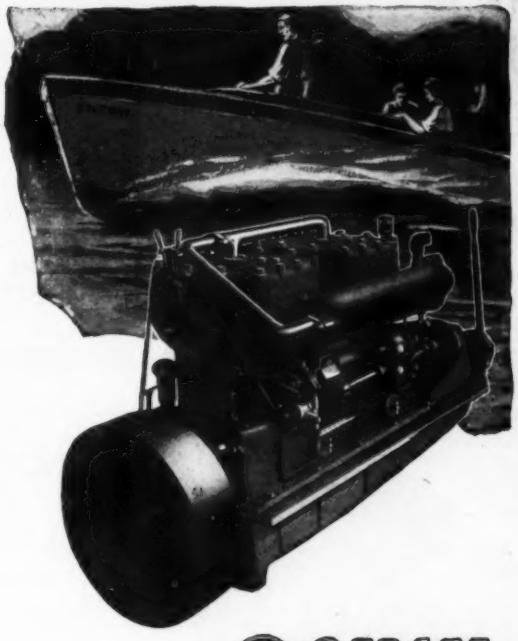
Special kerosene burning equipment optional.

Before buying a new boat or re-engining your old one, investigate the Doman.

Write for Specifications

THE H. C. DOMAN CO.

Station 815 Oshkosh, Wis.

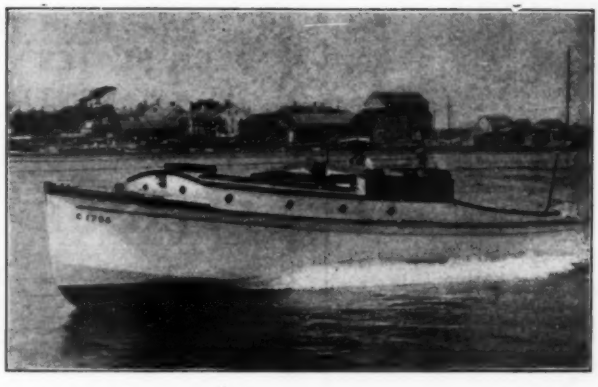


DOMAN
OSHKOSH, WIS

My Catalog Will Prove Interesting to All Who Like Motor Boats. Send Stamp for 1920 Issue of

HAND-V-BOTTOM

MOTOR BOAT DESIGNS



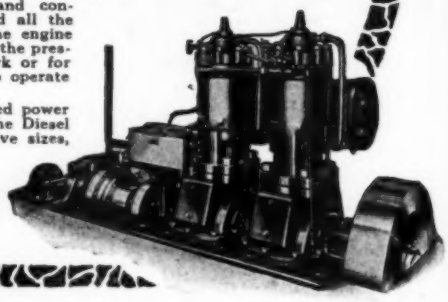
WILLIAM H. HAND, Jr. - *Naval Architect* - New Bedford, Mass.

MIANUS
MARINE MOTORS

Economy with Dependability

The constantly increasing shortage and constantly advancing prices of gasoline and all the lighter oils present a big problem for the engine buyer who considers the future as well as the present. Whether you use your boat for work or for pleasure, be sure you choose an engine which will be as economical to operate five or ten years from now as it is today.

The Mianus Heavy Oil Engine (Leissner System) is a fully developed power plant that burns any heavy oil and combines all the advantages of the Diesel without any of its complications or other disadvantages. Built in five sizes, from 7½ H.P. to 60 H.P.



Write for our catalog today.
We also build two cycle and four cycle gasoline engines.

THE MIANUS MOTOR WORKS, Stamford, Conn., U. S. A.

New York, N. Y. Baltimore, Md. Norfolk, Va.
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Improved Motor Boat Closet

Figure 1404

Dimensions: 18 x 18 x 11" high to top of bowl; 2½" cylinder. For above or below water line.

The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover.

All prices subject to market advances, which are continually changing.

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The J. H. Curtiss Co.
Pioneer Specialists in Marine Sanitary Fixtures

Since our advertisement appeared in the first issue of MoToR BoatinG, December, 1907, hundreds of Curtiss fixtures have been installed in motor cruisers and yachts of all sizes, including some of the finest boats launched within this period.

The Curtiss line is exceptionally complete, varied in type, size and price to meet every possible requirement. Each model has been designed in accordance with our wide experience in boat work and can be depended upon in quality, service and durability no matter whether it is our highest or lowest priced model.

"PRICES ON APPLICATION"

With Pump

Cock on pump swings upward, thus preventing breaking of bowl. Soap-dish is porcelain and removable.

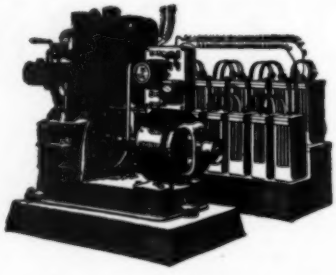
No. 5
Height, 19 in.
Width, 19 in.
Depth Closed, 6 inches.
Quartered Oak Case, or Mahogany Case.

Lining and Fixtures Nickel-plated. Porcelain Bowl. Mahogany or Quartered Oak Case.

2 South Street, New York

Genco-Light

MARINE LIGHTING PLANT



THE more you know about the fine points of electrical construction, the more will you appreciate the superiority of the Genco-Light Marine Plant. Built in 32 and 110-volt sizes up to 6 K-W, complete with battery, and suitable for every light and power service, afloat and ashore.

Live Dealers and Agents Wanted

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C. W. Dean, Marine Distributor, Norfolk, Va.
P. O. Box 863 Office: 417 to 421 William Street

"KNOWN AS THE BEST AND THE BEST KNOWN"

HARDWARE FOR WET PLACES

THE LARGEST STOCK IN U. S. A.

PORTLIGHTS
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DECK PLATES STEERERS
VENTILATORS
LOGS CLEATS, Etc.

A COMPLETE
FLAG DEPARTMENT

CHAS. D. DURKEE & CO. INC.
TRADE MARK MANUFACTURERS OF MARINE HARDWARE

FOR EVERY KIND OF CRAFT AFLOAT

2 SOUTH STREET, NEW YORK CITY

FACTORIES: STATEN ISLAND, N. Y. CITY

1090-page Catalog will be sent anywhere on payment of 25 cents to cover cost of delivery.

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Fifty Cents Brings You the Experience of Three Generations

THREE generations of marine outfitters have contributed their experience to the 287 pages of "Sea Craft Suggestions and Supplies." The information this book gives on WC Dependable Marine Hardware is alone worth many times its cost to small boat owners, while the hints it contains on such matters as Moorings, Proper Ground Tackle, Stern Bearings, How to Box the Compass, etc., are of practical every day value. Substantially bound in cloth. Prepaid to you for 50c.

W. C. Port Lights

One of the many WC products described in "Sea Craft Suggestions and Supplies." For use on work boats, schooners and smaller craft. In round or octagonal patterns, with one or two thumb screws. Absolutely water-proof when closed.

There's a WC dealer near you. If you don't know him, write us.

Wilcox, Crittenden & Co., Inc., 4 South Main Street Middletown, Conn.

Trade Mark Reg.

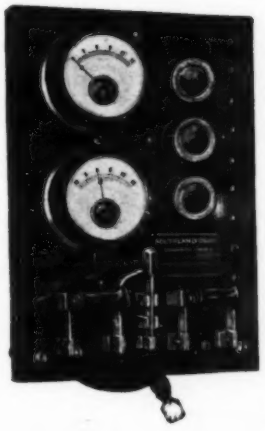
World's Largest Manufacturers of Marine Hardware ESTABLISHED 1847

LEBBY

LOW VOLTAGE SEARCHLIGHTS

7, 10 & 14 Inch 6, 12, 32 & 110 Volts

Easily Focussed



7-Inch Searchlight	$23.80
10-Inch Searchlight	46.75
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LEBBY BOAT LIGHTING SYSTEMS

6 Volts, for 6 Lamps	$97.75
12 Volts, for 10 Lamps	170.00
12 Volts, for 16 Lamps	246.50
32 Volts, for 20 Lamps	340.00

Send us your order today, or write for complete descriptions of Lebby Products

SOUTHLAND STEAMSHIP COMPANY

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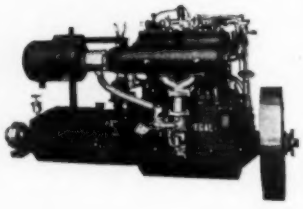
—FOUR CYCLE— MARINE ENGINES

FOR nineteen years have led the field in the design and construction of reliable and economical power plants. Sizes 2 h.p. to 50 h.p. One to four cylinder. Built to operate with gasoline distillate or kerosene.



REGALITE—the new Electric Lighting Plant, 2 h.p. air cooled motor, ¾ k.w. generator. Write for information.

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74 West Pearl Street COLDWATER, MICH.

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"ADJUSTO" GENERATOR-VALVE

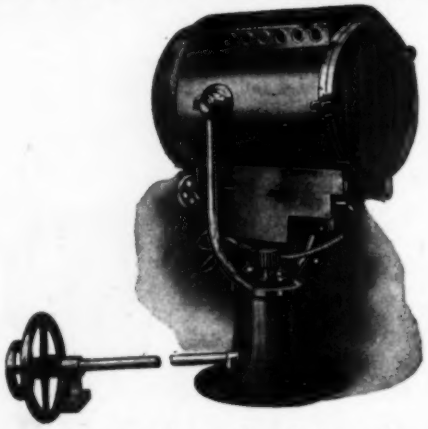
Made in sizes ⅜ to 2" inclusive.

Write for "Adjusto" Circular.

WE MANUFACTURE
Gasoline Cocks—Strainers—Priming Cups
Oil Cups—Grease Cups—Lubricators

The Wm. Powell Co.
CINCINNATI, OHIO

CARLISLE & FINCH ELECTRIC SEARCHLIGHTS



have for years been the choice of careful motor boat and ship owners. Made in all diameters, from 7" to 60". Used on every size craft from motor boat and yacht to battleship and ocean liner.

The Carlisle & Finch catalog of searchlights will be mailed to any boat owner, builder and marine architect on request

THE CARLISLE & FINCH COMPANY
261 East Clifton Ave. Cincinnati, Ohio

BARKER MOTORS

Leaders in 2-cycle class for twenty years and still supreme in

Dependability Durability
Simplicity Serviceability

"Imitated but Not Equalled"

Moderate Price
Conservative Ratings

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THE BARKER FACTORY
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Write for Barker "Red Letter Book" of Motors

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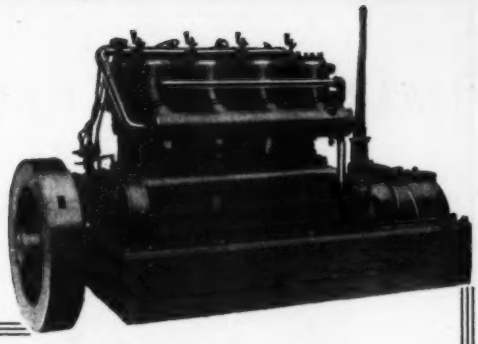
PALMER ENGINES
TRADE MARK REG. U.S. PAT. OFF.

The Old Reliable



FOUR CYCLE
3½ H.P. to 80 H.P.
One to Six Cylinders

TWO CYCLE
2½ H.P. to 10 H.P.
One and Two Cylinders

Palmer engines have been used extensively for twenty-five years in both pleasure and work boats. You'll find them in nearly every country on the earth.

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Everything for Motor Boats

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Rebuilt Engines

252	24 H.P.	Fairbanks-Morse Type "G" 2 cyc. 4 cyl.	$375.00
255	36 H.P.	Lathrop, 3 cyl. 2 cyc. and reverse gear	800.00
259	24 H.P.	Lathrop, 2 cyc. 2 cyl., regular equipment and coupling	425.00
261	24 H.P.	Lathrop, 2 cyl. 2 cyc., regular equipment	350.00
262	12 H.P.	Fairbanks-Morse Type "T" Special Electric Stationary Kerosene	450.00
266	6 H.P.	Brown Stationary	125.00
271	9 H.P.	Fairbanks-Morse Type "T" Special Electric Vertical Stationary Kerosene	425.00
272	6 H.P.	Lathrop, Standard Model	150.00
274	32 H.P.	Wolverine, 3 cyl. 4 cyc. and reverse gear	700.00
275	80 H.P.	Wolverine, 3 cyl. 4 cyc. propeller and reverse gear	2500.00
277	16 H.P.	Lathrop, 2 cyl. 2 cyc.	285.00
286	5 H.P.	Bulldog Hoist, nearly new	175.00
287	24 H.P.	Lathrop, 2 cyc. 2 cyl., reverse gear	500.00
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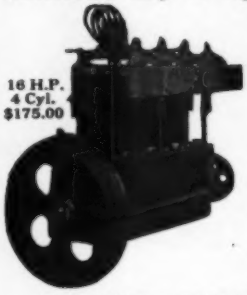
290	36 H.P.	Lathrop, 3 cyl. 2 cyc. jump spark and reverse gear	735.00
291	4 H.P.	Lathrop, 1 cyl. 2 cyc.	85.00
292	5 H.P.	Lathrop, 1 cyl. 2 cyc. (not overhauled), as is	30.00
293	20 H.P.	Lathrop, 2 cyl. 2 cyc. with coupling	350.00

DUNN MOTORS

2 to 16 H.P. — Four Cycle — Kerosene or Gasoline

Consider the Dunn Motor as a power plant for your boat. If you need a motor, from 2 H.P. up to 16 H.P., you can't find a better motor at the price, or a better value for your money.

Up-to-date, four-cycle design. Easy to start, accessible, easy to repair and economical to operate. Don't fail to write for catalog and see how Dunn Motors are built, and what their users say about them.



Prices below include complete equipment, consisting of suitable propeller, shaft, couplings, coil, spark plugs, mixing valve and oil cups.

Single Cylinder,	2 H.P.,	Bore 3¼", Stroke 4",	$42.50
Two Cylinder,	4 H.P.,	Bore 3¼", Stroke 4",	75.00
Three Cylinder,	6 H.P.,	Bore 3¼", Stroke 4",	100.00
Two Cylinder,	8 H.P.,	Bore 4¼", Stroke 5",	125.00
Three Cylinder,	12 H.P.,	Bore 4¼", Stroke 5",	150.00
Four Cylinder,	16 H.P.,	Bore 4¼", Stroke 5",	175.00

Foreign buyers—add 10% to above prices to cover cost of packing for export and delivering F.O.B. Steamer, New York City.

Write today for latest Catalog.

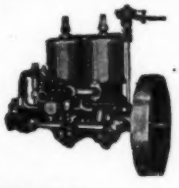
DUNN MOTOR WORKS

Ogdensburg, N. Y. U. S. A.

LONG LIFE

LIGHT

WEIGHT



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MOTORS

QUALITY PRODUCTS

Aluminum Crankcase

Copper Jacket

Built for Better Service

by

Arrow

Motor &

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Newark, N. J., U. S. A.

Foreign Sales Manager

J. E. Sitterly

47 Broadway, New York, N. Y.

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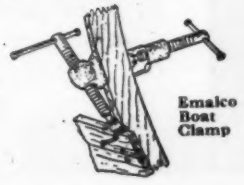
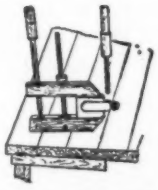


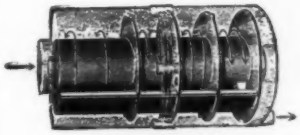
Emalco Boat Clamp

EMALCO MARINE HARDWARE

New England Headquarters for Motor Boat Supplies



Emalco Universal Clamp



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Bells
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Clocks
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Coils
Compasses
Cushions
Electric Lights
Fenders
Flags
Fog Horns
Gauges
Hooks
Horns
Lamps
Lighting Outfits
Locks
Magnetos
Mufflers
Nails
Nuts
Padlocks
Paint Brushes
Paint
Piston Rings
Polish
Port Lights
Propellers
Pulleys
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Screws
Sea Cocks
Seam Composition
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Spark Plugs
Speed Indicators
Sponges
Steering Wheels
Stoves
Strainers
Switches
Tanks
Tiller Rope
Torches
Varnish
Washers
Wheel Pullers
Whistles
Windlasses
Wrenches

and everything else for your boat.

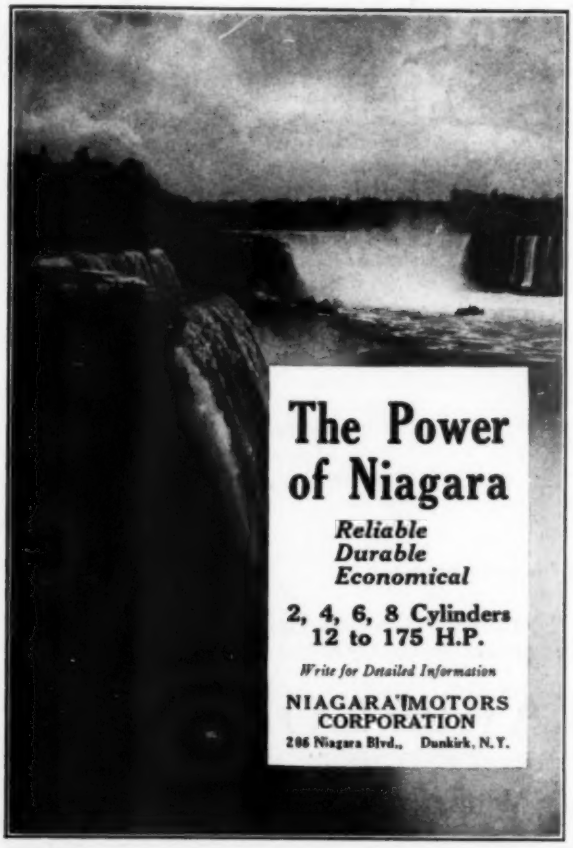
Write today for EMALCO Catalog if you want the best hardware at the most reasonable price. Export orders promptly attended to.

MALONE HARDWARE COMPANY

"WHERE THAT DOLLAR STRETCHES"

378 Atlantic Ave. Near Rowe's Wharf BOSTON, MASS.

BOSCH
PUT the power of Bosch High Tension Magneto Ignition behind your engine. It gives more miles per gallon and more miles per hour—also absolutely dependable and efficient ignition.
American Bosch Magneto Corporation
Main Office and Works—Springfield, Mass.
Branches: New York, Chicago, Detroit, San Francisco
Be Satisfied
Specify Bosch
AMERICA'S SUPREME
IGNITION SYSTEM



V-Bottom Type Most Suitable

(*Continued from page 28*)

cruiser of the V-bottom type, with the available space about equally divided between cockpit and cabin. The hull may vary from 24 to 30 feet, depending on the number to be accommodated. To insure dryness and cabin head-room the free-board should be liberal, and the beam ratio should be from 1 : 3 to 2 : 7. There should be a standing top over the cockpit and a skylight in the cabin. Bright-work should be used sparingly as the amateur, especially if he is single-handed, would rather spend his time loafing in the cockpit or sailing, rather than scraping and polishing.

The power-plant should be a four-cylinder, four-cycle motor, developing from fifteen to thirty horsepower, depending on the balance desired between speed and fuel consumption. The motor should be located under a sound-proof hatch in the cockpit and should exhaust through an efficient muffler out the stern. The fuel supply should feed by gravity, and, in fact, the whole installation should be kept as simple as possible.

For the amateur who is to take up motor boating in a locality where the conditions are new to him, he will do well to spend some time in studying the type of boat that is giving the most practical service in this particular place. There is no doubt but what there is much time and money wasted by beginners who plunge into the purchase of a boat before they are sure that it is the type that will meet the needs of the owner.

W. H. F., So. Freeport, Me.

Type of Boat for the Amateur

The type of small motor boat best suited to the pleasure of an amateur and his family is the one to which I have seen some five or six such family men gravitate naturally—the raised deck cruiser of from 25 to 30 feet in length.

I, like they, started with an open hull, and soon anticipated the joy and comfort of being able to stay out safely when the weather chooses to become unruly. This the sturdy cabin boat alone affords.

Of course, if your cruising ground is limited to such an extent that you cannot stray far from home, an open type launch or runabout will afford all the pleasures one can expect in such waters, but for a good morning's or afternoon's run to some quiet, unfrequented spot, there to lay at anchor and enjoy the cool breezes over a week-end, independent of weather, hotels, or train schedules, the cabin cruiser is the one to which you will come "eventually—why not now."

To the family man, convenience and comfort in his boat should take precedence over speed. A boat that is primarily a racing boat is all engine. On the other hand, he need not necessarily choose a boat that is slow and tubby. There are some excellent designs available as stock cruisers which are neither slow nor all engine, but are nicely balanced combinations of home comforts and moderate speed. For a family of four or less the usual type of raised deck or trunk cabin (although the trunk cabin type is not so roomy inside) in which four may comfortably sleep, two in the cabin and two on folding cots in the cockpit, is ideal. This is my particular type of boat and in wet weather when the cockpit side curtains are let down, never a drop of water enters to disturb the sleep of those sleeping in the cockpit.

Down here on the Schuylkill River there is a boat designed specially for a family of five or six. The boat is raised deck fore and aft, with cockpit in the center. The forward cabin is fifteen feet long and contains galley, engine and a separate toilet room. In it are housed (at night) the owner's wife, daughter and baby. In the after cabin, which is seven feet long and contains two comfortable six-foot bunks, the owner and son spend their eight hours in the arms of Morpheus. The cockpit is ten feet long and nine feet wide, affording plenty of space for the family in the daytime. There are waterproof curtains to let down all around the cockpit and I have seen two more sleep there in perfect comfort even in wet weather.

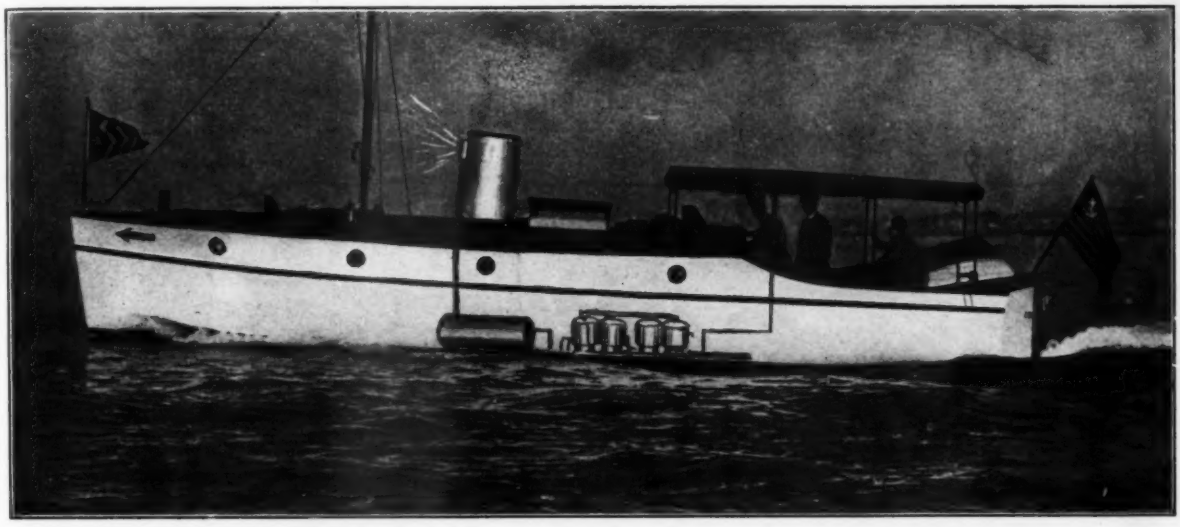
The entire boat is but 32 feet long and does a good ten miles an hour with 18 to 20 horsepower.

The boat is so well liked by all members of the family that they have closed up a town house, forsaken their usual summer home in the suburbs, and are living entirely on the boat all summer, within commuting distance by rail to the owner's office.

So, Mr. Amateur, get the boat now which you will certainly come to later should your choice be otherwise, and profit by the experience of others. You will never realize how good such commonplace fare as bacon and eggs can be until you enjoy them in your own cockpit after a refreshing night's sleep and an early morning plunge off the back deck.

W. E. M., Philadelphia, Pa.

Advertising Index will be found on page 110



NAVIGATION LAWS DEMAND A WHISTLE

Why Use An Auto Horn?

The first real whistle outfit ever built expressly for your boat.

The whistle can be operated at anchor, as well as under way, by means of air storage.

The best that can be produced and complete in every detail.

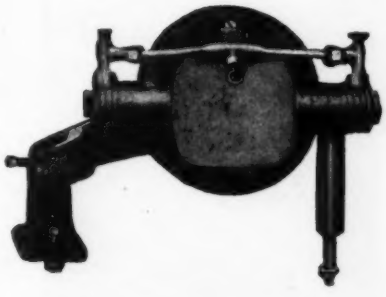
Standard Equipment

MODEL A

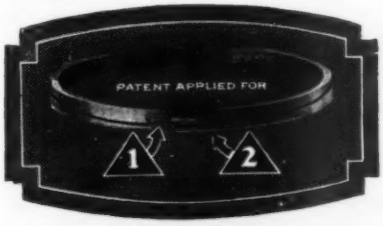
Compressor—1" bore, 1½" stroke, 2 cylinder opposed
Safety valve
Tank—8" x 18"
Gauge and whistle
Tubing—12'

MODEL B

Compressor—Same as Model A
Tank—12" x 24"
Gauge and whistle—larger
Tubing—20'



General Air Compressor, is friction driven, running in contact with the fly wheel of the engine, delivering an abundance of air to storage tank. Used in connection with General Navigation Whistle.



(1) The Lightning Cut
(2) The Wandering Oil Groove

GENERAL LIGHTNING CUT PISTON RINGS

will absolutely give you equa-radial pressure on your cylinder wall, obviate the loss of compression, and maintain the roundness of your cylinder.

The Wandering Oil Groove not only lubricates the cylinder wall, but effectively lubricates the ring itself, retaining the resiliency of the metal and avoiding friction.

General Lightning Cut Rings are guaranteed to give the best possible results. Properly fitted and used, they will effect economy in many ways. (Write us for further information.)

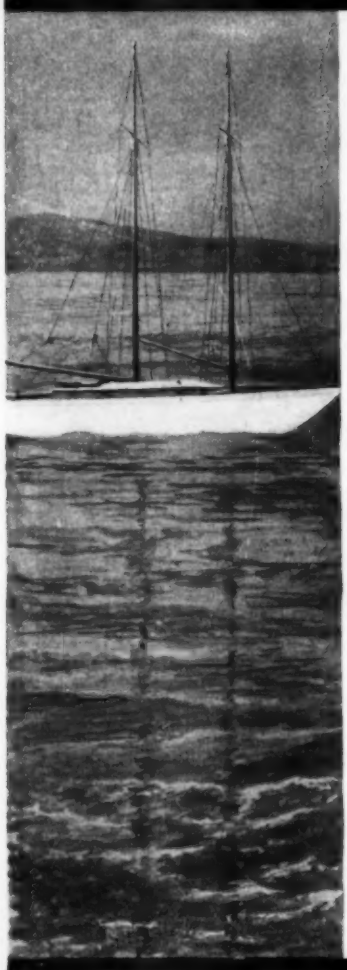
GENERAL UTILITY CO., *Manufacturers*

1326-28-30 Ogden Street, Philadelphia

JOHN M. STOCKFISH CO.
111 West Washington St., Chicago
Western Sales Representatives

Export Department
17 Battery Place
New York City

DEVOE



"Afloat on Every Sea"

DEVOE Marine Paints have been universally known and used on every sea for years. We manufacture a practical finish for every surface from spars to keel.

Columbia Yacht White

A permanent white for topsides, deck houses, and finest yacht white. It gives a semi-gloss finish, which can be scrubbed clean with soap and water.

Devoe Deck Paint

Outwears wear, water and weather. Withstands extreme weather exposure. Comes in seven durable colors.

Heat Resisting Enamel

This high gloss oil-proof, heat-proof enamel keeps marine engines clean, bright and rust free. Easy to apply, hard to chip off.

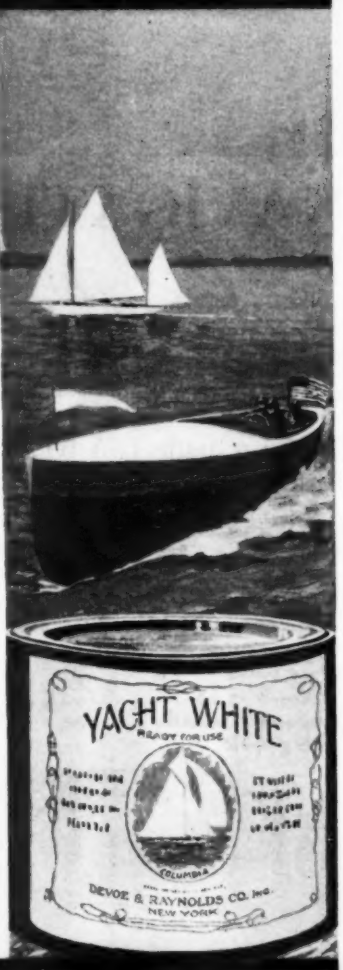
At Paint, Hardware and Ship Supply dealers

DEVOE

The oldest paint manufacturing concern in the United States. Founded in 1754

DEVOE & RAYNOLDS CO. Inc.

New York 101 Fulton St. Chicago 14 W. Lake St.

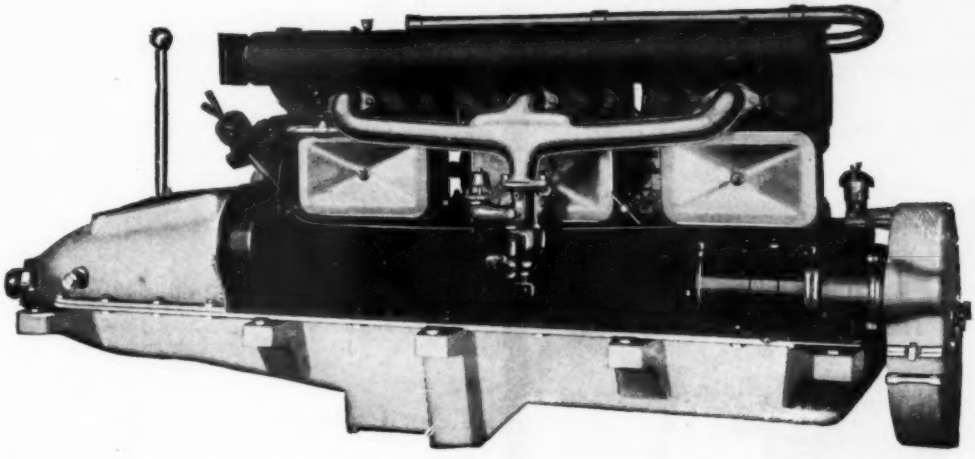


MARINE PAINTS

Advertising Index will be found on page 110

Scripps

The Motor that Crossed the Atlantic



A World Wide Reputation for Built-In Service

ALONG the snowbound shores of Alaska, the rocky cliffs of Maine, the turbulent rivers of South America and India—in storms, through fogs and rough waters, where a failing of power would mean almost certain destruction—*Scripps Engines* are relied upon to render constant, dependable service.

The confidence and admiration of the leading engine men of foreign fields have been gained by the reliable service qualities of *Scripps Engines.*

The supreme test of foreign waters shows the true quality of *Scripps Engines.* Engines that operate thousands of miles from their base of supplies, must have dependability and service built right in every part, and must be free from dependence upon factory for frequent repair service and replacement of parts. They must stand the severest punishment and still render faultless service. Scripps Engines are constantly being shipped to all parts of the world —an undeniable proof of "Scripps" Superiority.

The tremendous power and endurance qualities of Scripps Engines are built-in qualities. They are clean, quiet running, easy operating and readily accessible in emergencies.

Scripps Engines are suitable for pleasure, speed, cruiser or commercial service. The SCRIPPS line is unusually complete. It includes power plants 10 to 125 H.P.—all four-cycle engines in two, four or six cylinders, medium duty or high speed—some using gasoline exclusively, others fitted for burning either gasoline or kerosene.

Write Today for Catalog

SCRIPPS MOTOR COMPANY

631 Lincoln Avenue, Detroit, Mich.

"Every Moving Part Enclosed"

GRAY-PRIOR
FOUR CYCLE MARINE MOTORS
Built up to a Standard—not down to a price

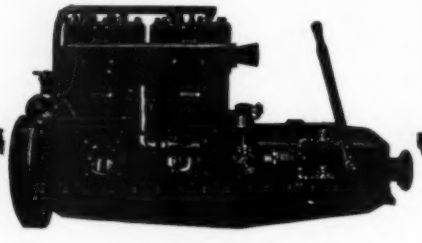
A Clean-Cut Power Plant

For Commercial Boats and Cruisers

Model D-4, Medium Heavy Duty
36 Horse Power Bore, 4½ inches Stroke, 8 inches

Write today for full description and prices

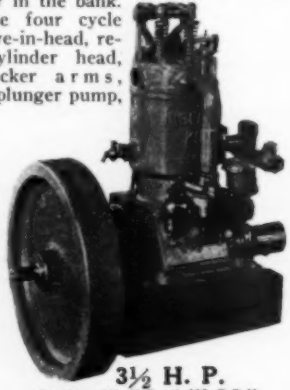
The Gray & Prior Machine Co.
56 Suffield Street
Hartford, Conn., U. S. A.



"LIBERTY KID"

The Best Little Medium-Duty Marine Engine on the Market —with Power to Spare

Every engine dealer and boat builder knows the demand for a high grade small engine like the Liberty Kid,—for runabouts, tenders, fishing boats, work boats, etc. A Liberty Kid on your sales floor is better than money in the bank. High grade four cycle design, valve-in-head, removable cylinder head, bronze, rocker arms, push-rods, plunger pump, etc.



Liberty Kid is not an experiment. Over 200 in actual use. Immediate deliveries on early orders. Write for catalog and testimonials.

AGENTS AND DEALERS

Get the agency for Liberty Kid if you want to increase your profits the easiest way. Write us.

3½ H. P.
Develops 3½ H.P. at 600 R.P.M.
Develops 4 H.P. at 750 R.P.M.
Also built in Double Cylinder Model giving 8 H.P.

A. G. HEBGEN, *Manufacturer and Sole Distributor*
440 MARKET STREET SAN FRANCISCO, CAL.

To Miami in Twenty Days

(*Continued from page* 18)

Days out of New York	From and to	Length of Run in nautical miles	Total distance from New York	Anchorage, Characteristics of Runs, etc.
(P.M.) 9th day	Beaufort to Charleston, S. C.....	120	715	distant 16 miles; change course to WSW ⅜ W for 25 miles to position 3 miles ESE of Charleston lightvessel. Enter harbor. Anchor off Carolina Y. C. in Cooper River, arriving at dark.
10th day	Charleston to Ashepoo River, S. C....	50	765	Replenish supplies at Charleston. Inside route again. Good anchorage for night at further end of Fenwick Island Cut connecting S. Edisto and Ashepoo Rivers.
11th day	Ashepoo River to Thunderbolt, Ga...	68	833	Through various inside waterways and across St. Helena, Port Royal and Calibogue Sounds to Thunderbolt, where anchor for night off Savannah Y. C. Take on gas here and supplies. Seven-foot rise and fall of tide.
12th day	Thunderbolt to Doboy Sound, Ga.....	58	891	Inside run made interesting by passage of St. Catherine's Sound, where east wind may kick up quite a sea. Take quiet anchorage in Old Teakettle Creek.
13th day	Doboy Sound to Mayport, Florida.....	80	971	Inside passage to Fernandina, Fla., where supplies may be taken if necessary. Outside run from Cumberland Sound to mouth of St. Johns River (25 miles), avoiding troublesome route inside. Anchor off Mayport or upriver in Sister's Creek.
14th day	Upriver to Jacksonville and return to Mayport	45	971	Side trip should be arranged to carry tide both up and down as much time and fuel will be saved by so doing. Gas is taken on at Standard wharf above R.R. bridge.
15th day	Mayport to St. Augustine, Fla.....	34	1,005	Short run with few difficulties. Within mile of city is a bar which arrested many a gallant barque. Follow F. P.'s closely and anchor off St. Augustine P. B. C.
16th day	St. Augustine to New Smyrna, Fla.....	60	1,065	Run must be made with care, the shifting bar at Mosquito Inlet being one of the chief causes of complaint. Anchor off New Smyrna or tie up at wharf.
17th day	New Smyrna to Cocoa-Rockledge, Fla.	57	1,122	Pay close attention in Hillsboro River to F. P.'s as channel is extremely tortuous. After the Haulover Canal, upper part of India River will be hard sledding if wind is strong from the North. Take on supplies of all kinds at Cocoa.

(*Continued on page* 80)

Advertising Index will be found on page 110

A NEW FLORIDA FISHING BOAT

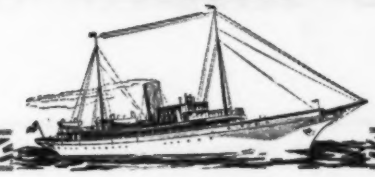
Designed to meet the requirements of those who enjoy fishing, day sailing, or short cruises in Florida waters.

The propelling machinery consists of two six-cylinder 66 horsepower Speedway motors. Their flexibility permits a trolling speed of two miles per hour and a maximum of twenty.

Orders are being taken now for fall delivery.

Blue-prints and full details of this new 1920-21 fishing boat design will be furnished upon request

CONSOLIDATED
SHIPBUILDING CORPORATION
MORRIS HEIGHTS, NEW YORK CITY

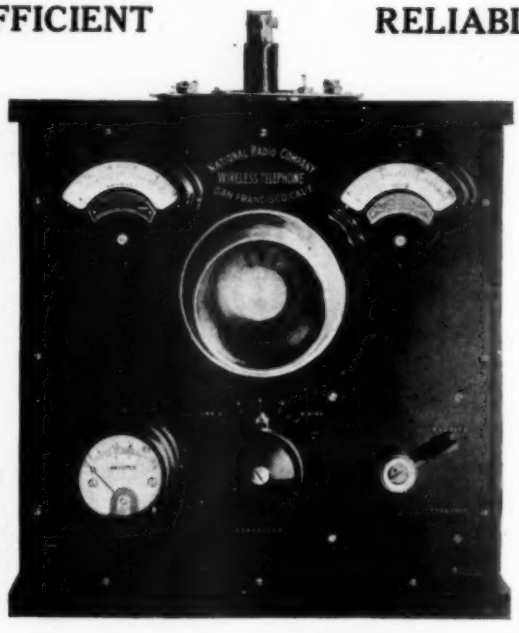


WIRELESS TELEPHONES
FOR
COMMERCIAL USE

Especially adapted for use on Private Yachts

EFFICIENT **RELIABLE**

So simple they can be operated by anyone able to talk.



Will not get out of order; require practically no attention.

Maximum service with minimum "upkeep" expense.

Little in size, but BIG in the service they give.

COMPACT **SERVICEABLE**

NATIONAL RADIO COMPANY'S WIRELESS TELEPHONE was the first to be used successfully for a commercial wireless telephone message; this was between the Wanamaker Stores in New York and Philadelphia.

The first wireless telephone message received on an aeroplane was transmitted by this apparatus at Monterey, California.

In both the above cases the transmitted words were clear and distinct, but later improvements have so increased the volume and tone of the voice waves in the present instrument that perfect reproduction of sound is secured.

Fully protected by patents in the U. S. and 29 foreign countries.

SOLD UNDER POSITIVE GUARANTEE

CALL, WRITE, OR WIRE

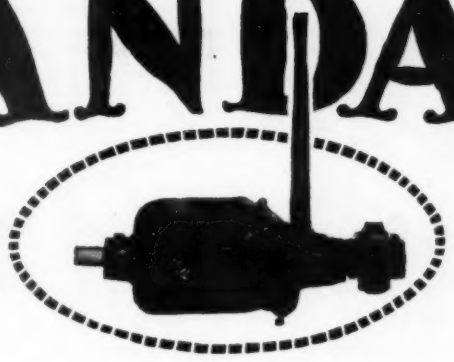
DEPT. MB.

NATIONAL RADIO COMPANY

719 Pacific Building Cable address "Natradio," San Francisco **San Francisco, Cal.**

Advertising Index will be found on page 110

STANDARD REVERSE GEAR



More than 30,000 Standard Reverse Gears now in service throughout the world guarantee the satisfaction you will get if you put a Standard in your boat, or specify a Standard gear with your next engine. We never could have built and sold so many of them if the Standard was not an unusually dependable reverse gear.

When you buy a Standard you get all the desirable qualities a first class gear should have. It is completely enclosed so it can't throw oil in your boat, or spatter your clothes; running constantly in a bath of oil, it is impossible for the gears or bearings to wear and grow noisy. It is strong, light, compact, simple in design, quiet in action and as durable, dependable and trouble proof as any reverse can be built.

The materials used in Standard Gears are the best money can buy. Our machinists learned their trade making parts for Detroit's most expensive automobiles, and the same standards of perfection are maintained in this plant. You won't make any mistake if you choose a Standard.

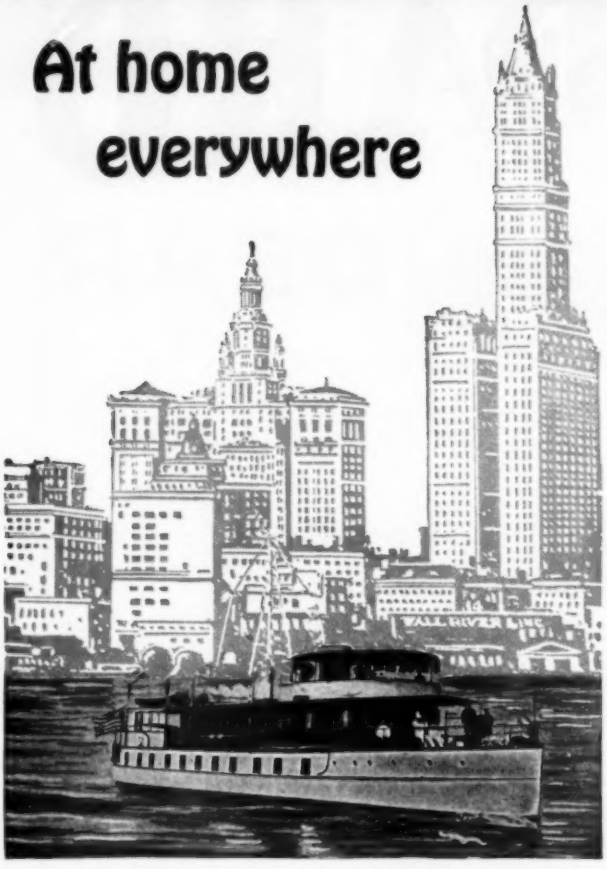
Prices $42.00 to $147.00

including Ball Bearing Thrust Collar and Coupling. Immediate shipment from stock on all size gears. Write today for new Catalog.

STANDARD GEAR COMPANY

700 Commonwealth Avenue **Detroit, Michigan**

At home everywhere



Shown above is the 106-ft. "Leonie"—Mathis-built

MATHIS-BUILT HOUSEBOATS

Everywhere—from New York's congested harbor to the most unfrequented Northern waterways — these seaworthy houseboats have been giving their owner's a bracing Summer crowded with comfort and pleasure that can be secured in no other way.

And soon all will be pointed southward toward Florida for a leisurely, delightful cruise around America's best-known Winter playwaters.

Submit your plans for the Mathis estimate. If not yet ready, maybe our suggestions—based on the experiences of America's best-known houseboat owners—will help you.

MATHIS YACHT BUILDING COMPANY

Specialists in Houseboats and Cruisers from 40 to 120 feet

COOPER'S POINT CAMDEN, N. J.

Yard and Shop

(*Continued from page* 38)

the man with the little green bottle of precious fluid to mix with water to make a gasoline substitute. From far off California comes R. J. Meyers with the answer. He discovered a process for converting water to a suitable motor fuel and some prominent Eastern capitalists have paid him a fabulous sum for his secret. It is understood this new fuel is to be manufactured on a large scale in the East, and it is believed the fluid can be produced to retail at 10 cents per gallon.

The Yachtsman's Guide

The 1920 edition of the Yachtsman's Annual Guide and Nautical Calendar has just been issued. Early in March, as the book was about to be printed, a fire in the bindery destroyed all the forms. This occasioned serious delay and is responsible for the late appearance of the book. Nevertheless, it is well worth while for every yachtsman to secure a copy of this valuable book, as the information contained is all new and thoroughly up-to-date. The book can be secured from the publisher, C. B. Hogg, at 134 Milk Street, Boston, Mass.

Motor Boat Racing at Trinidad

In far-off Trinidad, not long ago, some motor boat races were held which proved very interesting and exciting. The All Blue Boat Club conducted the races and classes were provided for motor boats as well as for other forms of water sports. The races were won by Vamp with a Van Blerck motor. Other competitors were Casual, with a Universal motor, and Bat, with the Kermath motor. Buynemer, another of the competing boats, was provided with an automobile motor.

Nitro for Carbon

Nitro is offered after many tests by capable engineers long associated with the marine industry, who appreciate the immediate need of a preparation that will serve to reduce gasoline consumption without injury to the motor, carburetor or lubrication, and remove carbon without expense and repeated annoyance of being deprived of use of boat.

To Miami in Twenty Days

(*Continued from page* 76)

Days out of New York	From and to	Length of Run in nautical miles	Total distance from New York	Anchorage, Characteristics of Runs, etc.
18th day	Cocoa to Fort Pierce, Fla.	60	1,182	This day's run is easy with the exception of the Narrows, as there is at places a depth of 15 feet in Indian River. Tie up to long wharf at Ft. Pierce and throw out stern anchor. Discomfort experienced here with E. wind.
19th day	Fort Pierce to Palm Beach, Fla.	49	1,231	St. Lucie Inlet, South Jupiter Narrows and upper end of Lake Worth are among least attractive spots of this run.
20th day	Palm Beach to Miami, Fla.	64	1,295	Look for first alligators in canal south of Lake Worth on entire trip by running outside at New River and skirt coast to cut off Miami. Follow dredged channel across Biscayne Bay and anchor off the Biscayne Bay Y. C., or tie up in Miami River.

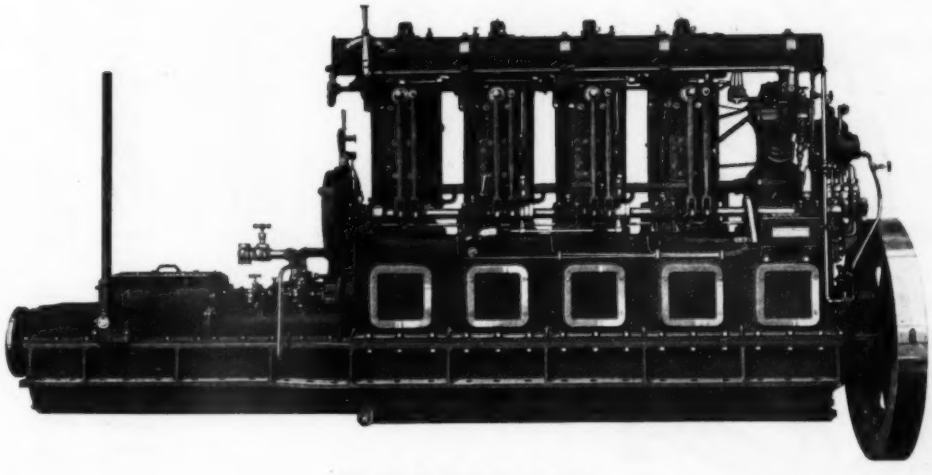
Advertising Index will be found on page 110

New London Ship & Engine Co

Builders of High Grade Heavy Duty Type

MARINE DIESEL ENGINES

Reliable, Economical
Low Upkeep
Built to Lloyd's Rules



120 B. H. P. Nelseco Diesel

Sizes
120 B. H. P. and up to 3400 I. H. P.

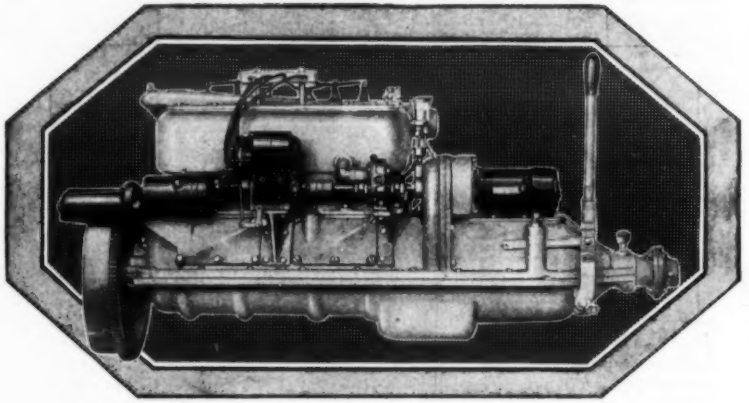
Write for Bulletins on Nelseco Diesel Engines

GROTON, CONN., U. S. A.

Advertising Index will be found on page 110

KERMATH

"America's Standard Four Cycle Engine"



There's a History of Standardization Behind This Fine Engine

TO every man or woman who has ever been interested in Motor Boating, the advantages of Kermath standardization must be obvious.

ardization must be obvious.

In fact, they are perfectly plain to anyone who gives the matter a little logical thought.

Every part of every Kermath motor that was ever built is interchangeable; in other words, you can assemble and fit perfectly any 1920 Kermath part into a 1912 or 1915 or any other Kermath model that has ever been brought out.

This is the reason why Kermath is called "America's Standard 4-Cycle Engine." It explains why over 60% of America's boat builders specify Kermath, and why Kermath is the leading American marine engine in the foreign field.

It also explains why the Kermath owner is a satisfied owner—that, and the fact that the Kermath always runs with a minimum of fuel and a delightful rarity of replacement and adjustment.

It will pay you to look up a Kermath dealer. You will usually find that he has more practical knowledge of the motor boat business and a reputation of giving better service than any other dealer in the vicinity.

Write for the Kermath booklet—it will interest you immensely whether you own a boat or consider buying one. Address Dept. "D."

4 cyl. 4 cycle—12, 16, 20 and 40 H. P. Prices $450 to $1650. **Immediate delivery.**

"A Kermath Always Runs"

KERMATH M'f'g Co.
DETROIT MICHIGAN.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating

CHASE
Leatherwove
MADE BY SANFORD MILLS
SANFORD, ME.

'Tis good news to hear that Chase Leatherwove has been proclaimed "the better boat upholstery of today."

Re-upholster with Chase Leatherwove

Write for Samples

L. C. CHASE & CO.....BOSTON
New York Detroit San Francisco Chicago

MOTOR BOAT LIGHTING AND IGNITION SYSTEMS

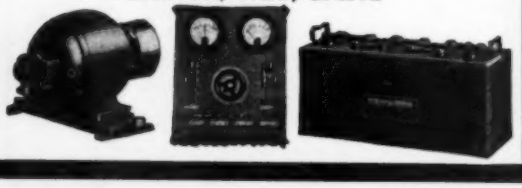
A proven product of 15 years' actual use by the Motor Boat Trade.

Made up in combinations of Dynamo-Battery and Switchboard for water craft of every description.

6—12—32 VOLTS
4 TO 40 LIGHTS

Catalogue upon Request

THE A-C ELECTRICAL MFG. CO.
DAYTON, OHIO, U. S. A.



Motor Boatmen's Charts and Log Sheets Published by Motor Boating

Charts printed on heavy cardboard 8½" x 11" and punched to fit standard loose leaf folder.

Contain name and location of all principal ports and harbors, distances, compass courses and directions. Invaluable for use on small boats and motor yachts. The set now includes the following charts:

SERIES A

No. 1—Western End of Long Island Sound
No. 2—Eastern End of Long Island Sound
No. 3—Block Island Sound
No. 4—New York Harbor
No. 5—Boston Harbor
No. 6—Buzzards Bay
No. 7—Block Island to Vineyard Sound, including Narragansett Bay
No. 8—Delaware Bay
No. 9—Chesapeake Bay, Part I, Upper Part
No. 10—Coast of Maine, Portland to Rockland
No. 11—Hudson River, Kingston to Albany
No. 12—Chesapeake Bay, Part II, Central Part

SERIES B

Series B Charts Nos. 13 to 24 are in the course of preparation, and will be forwarded as ready. Series B is as follows:

No. 13—Lake Erie—Eastern Part
No. 14—Lake Erie—Western Part
No. 15—Hudson River, New York to Kingston
No. 16—Lake Champlain
No. 17—Erie Barge Canal
No. 18 — Massachusetts Coast
No. 19—New England—Newburyport to Portland
No. 20—Cape Cod Bay
No. 21—Maine, Monhegan to Eastport
No. 22—Chesapeake Bay, Part III, Lower Part
No. 23 — St. Lawrence River and Thousand Islands
No. 24—Biscayne Bay

MoToR BoatinG has also published a log sheet to fit the standard 8½" x 11" loose leaf folder. Each sheet contains spaces for such data as time of passing various aids to navigation, names of aids, magnetic and compass courses, distances, patent log readings, speed of boat, revolutions of motor, wind direction and force, condition of weather and sea, depths of water, fuel, time of high and low water, etc., etc.

PRICES

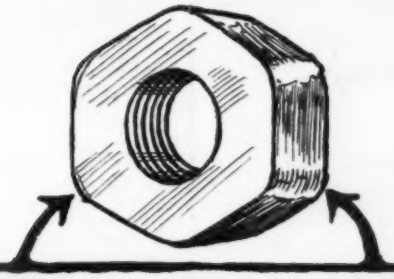
Charts 25 cents each or $1.50 per set of 12 (Series B will be sent as published).

Log sheets $1.00 per set of 50 sheets.

Loose leaf binders (canvas bound) to hold charts and log sheets, $1.75.

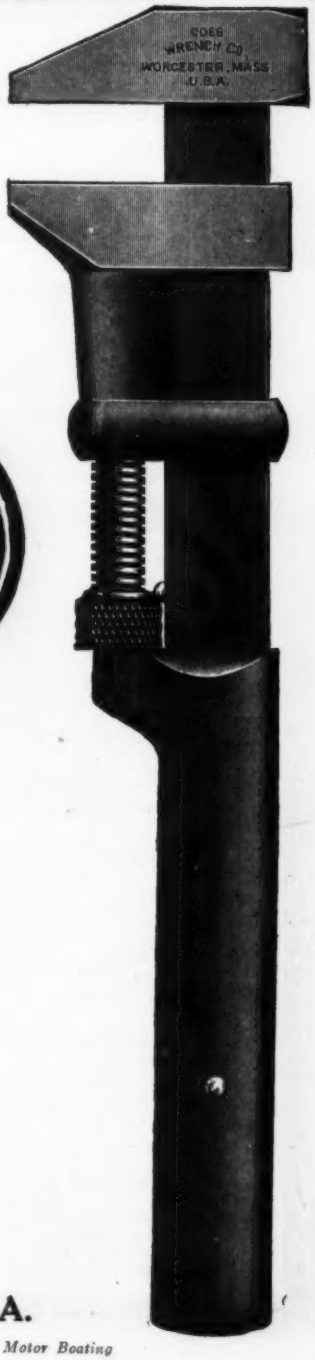
MOTOR BOATING
119 West 40th St. New York City

Advertising Index will be found on page 110



Ever Have This Happen to You?

Coes Wrenches are made to fit all the time. They have the backbone to do it. The jaws will not spread and wipe off the corners.



TRADE MARK
REG. U.S. PAT. OFF.
NO. 64696

Coes

The steel handle model is made in seven sizes, from 6" to 21". Five solid parts make up the wrench. It is the logical engine room and machine shop tool. Why not ask your jobber? Or your dealer? Or us.

COES WRENCH COMPANY

Worcester **Mass., U. S. A.**

Comes once more to this side of the water.

This triumph is due not only to our pre-eminence in boat and engine building, but also to the superiority of American made Accessories and Fittings.

Our victory should spur every boat owner to bring out all the speed that there is in his craft, by using the best and most up to date equipment.

Our new catalogue No. 103 will prove a most efficient help in developing all of the capabilities of your boat.

If you do not have a copy, send for it at once.

Forwarded on application.

GEO·B·CARPENTER & CO.

Marine Supplies

CARPENTER

200 W. Austin Ave. Chicago

Don't Forget to Take Along a

FLASH-O-LIGHT TESTER FOR SPARK PLUGS

Indispensable for owners of motor boats, automobiles, tractors, aeroplanes and gasolene engines. A necessity for repair men.

It has saved many an outing that might have been spoiled by spark plug difficulties. In a flash it locates the cause for the trouble.

No Light—Means short or open circuit

Dim Light—Means spark gap too small

Medium Light—Means spark plugs working properly.

Bright Light—Means spark gap too large

ORDER ONE FROM YOUR DEALER TODAY or mail this coupon:

Flash-O-Light Sales Co. Dept. B-4 507 Fifth Avenue, New York.

Enclosed find $3.00 for one Flash-O-Light Spark Plug Tester.

Name .....

Address .....

Miss Toronto Wins on St. Lawrence

(*Continued from page* 54)

The experience of Commodore Sidway and his efforts to obtain a hydroplane for this year's racing was almost identical with that of the Thousand Islands Yacht Club in their endeavor to have a boat built to represent their own club in various events. They also gave their order to Pedersen for the hull and he fell down most miserably although he kept up the hopes of the members of the St. Lawrence river syndicate who were paying for the boat with continual promises which were never fulfilled. It is now planned to take the hull as far as completed away from Pedersen and have it completed by a local builder.

Thus the Thousand Islands Yacht Club were without a defending boat, but like a true sportsman, Commodore Ralph Sidway of the Buffalo Launch Club, also a member of the Thousand Islands Yacht Club, offered to race his craft Arab IV under the colors of the Thousand Islands Yacht Club.

As usual, Alfred Graham Miles had a boat entered but equally as usual, she was too slow to count for much. However, she was not intended for racing and Mr. Miles, good sportsman as he always is, is to be commended for entering the P.D.Q.VI which is now powered with a 6-cylinder GR Sterling motor instead of the 12 cylinder racing motor which has driven this hull in so many events in years past. With her present power plant, P.D.Q. VI makes an excellent runabout and is used for this purpose by her owner.

The weather was perfect for the races as were the other settings which are characteristic of the annual race of the Thousand Islands Club. Commodore James H. Hammond was a royal host to all the visiting yachtsmen. Not a thing which might have been done for their comfort was left undone.

The racing started on Wednesday, August 25. Classes for both hydroplanes and displacement runabouts were provided. The courses were 29⅝ and 19⅝ miles respectively, 5 miles to the lap.

In the runabout class there were four starters, namely Brush By, Leopard V, Hel Scoot and Packard. The first three were powered with Hall Scott marine motors and Packard had an automobile motor. As might be expected the boats powered with the marine type of power plant finished one, two, three. This was the first race for Hall Scott motors in the north and it was expected that the desire of some of the other engine manufacturers to give them a real run would be keen, but none of the other boats entered showed up for the start.

Credit must be given to the Hall-Scott for their most creditable performance in all three boats in both heats. No engine trouble of any kind developed and all boats showed a fast turn of speed for ordinary runabouts. Brush By finished first in both heats, averaging 36.4 and 38.1 miles per hour in the two 19⅝-mile races. The latter speed is the best to date for the distance in an A. P. B. A. displacement boat race.

Leopard IV, owned by Griff Clarke of Toronto, also Hall-Scott powered, finished third in the first race and second on the second day, showing speeds of 35 and 36.4 miles per hour. Hel Scoot was second and third, Packard fourth in both races.

When the hydroplane race was called on the first day, water conditions could not have been more perfect. There was no wind and the river was like glass except for the chop thrown up by the spectators' boats. Both Miss Toronto and Arab IV feared each other, so at the start both drivers gave their craft everything that was in them.

Jack Bickell at the wheel of Miss Toronto and F. G. Ericson as engineer knew no fear. Ralph Sidway at the wheel of Arab IV was equally as oblivious of any danger.

Arab IV got the best start, but only by a hair. Miss Toronto, taking another course soon passed Arab, but it required every bit of speed she had. Once in the lead, Miss Toronto slowed down a bit, and on the home stretch of the first lap Arab was hardly 100 yards astern and appeared to be gaining. All of a sudden she hit one of Miss Toronto's stern waves, skidded from side to side a couple of moments and then took a bow dive under the surface of the water, never to return. Commodore Sidway and his mechanician were rescued.

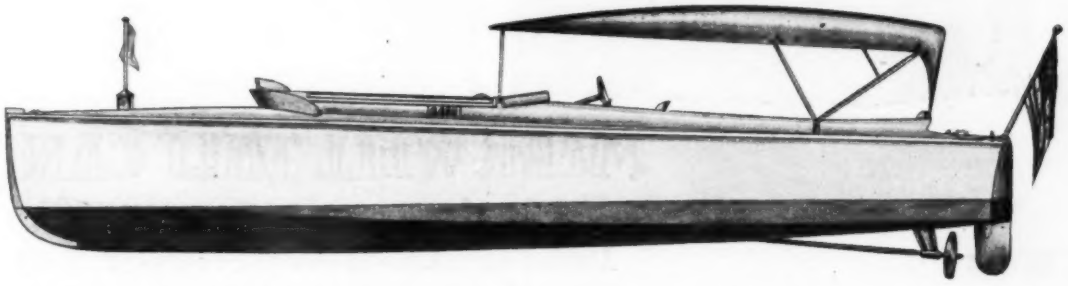
With the sinking of Arab the real race was over, and P. D. Q. VI, the only other starter, was too slow for Miss Toronto. When Jack Bickell saw what had happened he slowed down Miss Toronto and took things more easily. He finished the first lap of 5 miles in 5 minutes flat—a speed of 60 miles an hour—a new American record and the first time that a mile-a-minute speed has been made in competition.

Miss Toronto finished the first race with a speed of 52.99 miles an hour and the second at a speed of 56.9 miles per hour, also an American record for a race. The best previous A. P. B. A. speed for a race was made in the Gold Cup race in 1917 by Miss Detroit II at Minneapolis, when she averaged 56.5 miles an hour for 30 miles. This record has stood for three years. Thus, what the Thousand Islands meet lacked in competition was made up for in speed and two new American records—5 miles at 60 miles an hour and 30 miles at 56.9 miles per hour.

Advertising Index will be found on page 110

Albany BOATS

An Albany 26-foot Seven Passenger Runabout



A buoyant, speedy and dry boat that is built over a form to insure accuracy of line and reliability. The frame is of a style heretofore used only in the most expensive, built-to-order, Albany boats. The following are a few of the especially desirable, distinctive features which will return the owner a maximum of boating pleasure:

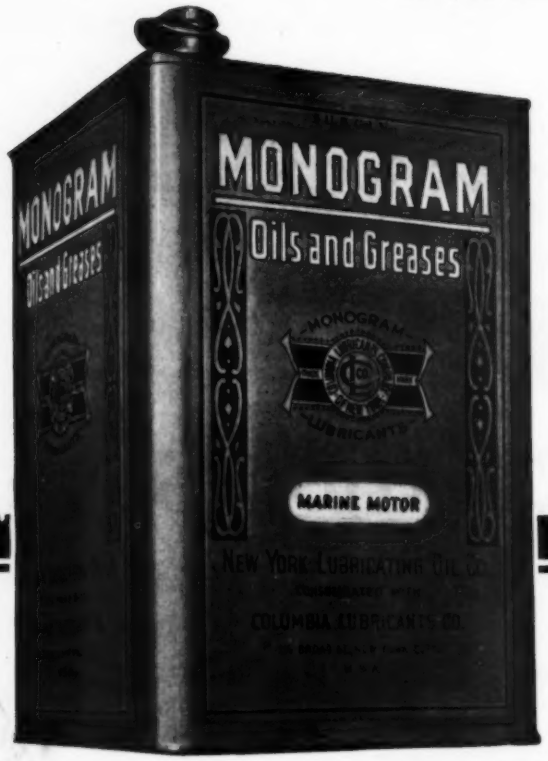
Modified V-bottom	One man top
Graceful lines	Polished plate glass windshield—
Raised Hatches	disappearing type
Superior Construction	Luxurious cushions and lazybacks
Electric generator and starter	Unit power plant
Electric lights	4-cylinder 4-cycle motor
Automobile drive	20 m. p. h. speed
Controls on port side	Seats seven passengers

Sister boats in the Albany fleet comprise 30- and 35-foot Mahogany Fast Runabouts; 40-, 42-, 50- and 57-foot Express Cruisers de Luxe. Detailed specifications and pictures of the boat that is of interest will be forwarded to responsible parties on request.

Albany Boat Corporation

Seventh Street

Watervliet, N. Y.



MARK WELL THIS CAN!

It is the mark of scientific lubrication. Whenever you see it, in a gasoline supply station, or supply store, you can rest assured that the dealer is worthy of your fullest trust and confidence. By this can you will know the dealer who conducts his business honestly and fairly, and endeavors to give his customers the maximum lubrication service for a fair price. Patronize those dealers handling

.... MONOGRAM.....

Insist upon getting it.

The Makers of Monogram

NEW YORK LUBRICATING OIL CO

NEW YORK

Advertising Index will be found on page 110

Universal MARINE MOTOR

Dependable as the Tide

Specialization in building one type of marine motor has developed unusual skill in every department of production. The Universal 9-12 H.P. motor has long been recognized all over the world as a reliable power plant for boats of any type up to 30 ft. Its smooth, masterful delivery of power has made it the chosen favorite of experienced boatmen.

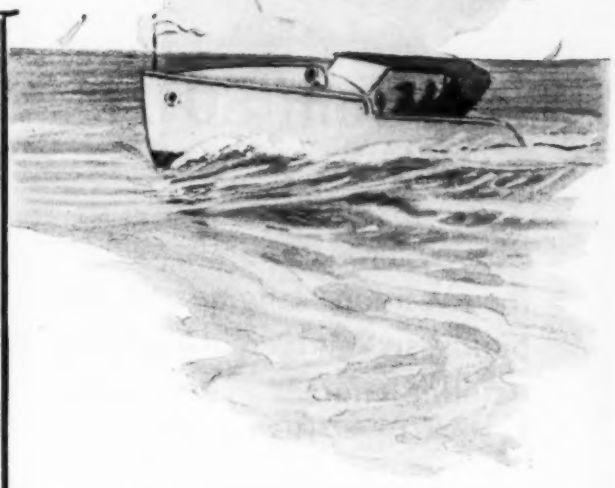
The Universal has been so perfected as to become a standard type. There are no costly yearly changes of models to needlessly increase the price of the Universal motor.

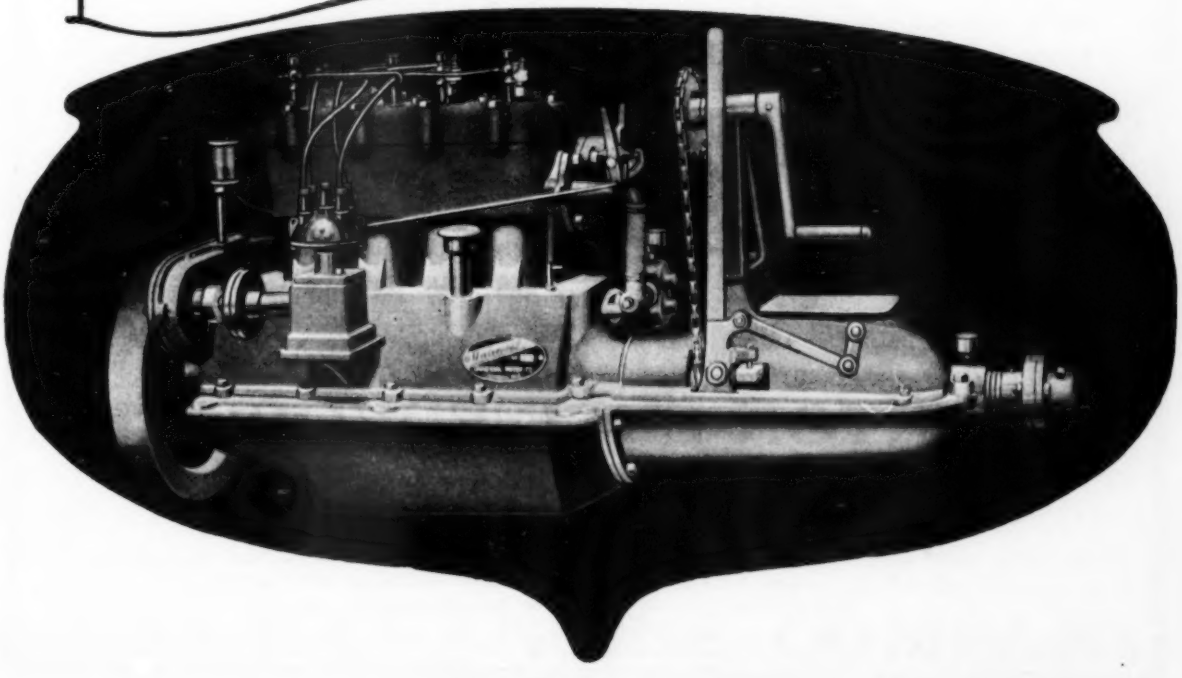
The Universal 4 K.W. Generating Set furnishes steady, flickerless electric light and is as popular as the Universal Motor. It is widely used for lighting boats and boathouses, summer camps and homes.

Write for the Universal Catalog.

UNIVERSAL MOTOR CO.

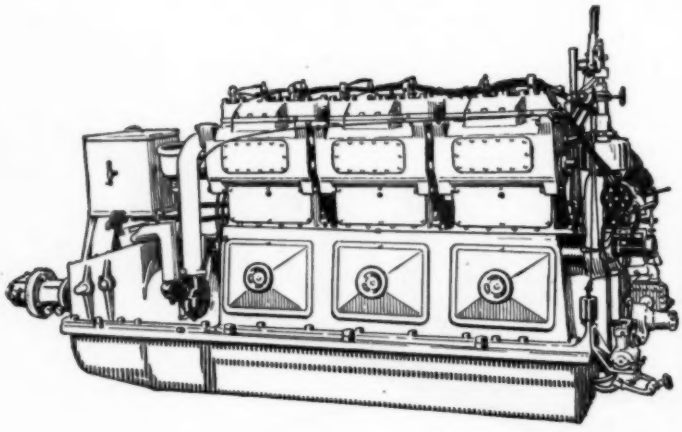
Oshkosh **Wisconsin**





Winton

GASOLINE MARINE ENGINES



From 80 H. P. to 200 H. P.

For workboats and yachts, the Winton Engine Works builds six-and eight-cylinder gasoline engines in five sizes, from 80 to 200 H. P.

These are exceptional engines, built to a high standard and able to perform hard work with little fuss, little noise and practically no vibration. Incidentally, their operation is so clean that a Winton marine engine room aboard ship can be as spick and span as a library.

Engineers operating Winton gasoline marine engines are uniformly delighted with them, and we have a long list of satisfied buyers which we shall be glad to submit to you if you are interested.

Details of all five of these engine sizes are now available in a new booklet, copy of which we shall send you on request. Also, our Engineering Department is ready to co-operate with you and your Naval Architect in working out a happy solution of your precise needs for either workboat or yacht. We shall be pleased to have you write us.

WINTON ENGINE WORKS

2122 West 106th Street, Cleveland, Ohio

DEALERS: New York—A. G. Griese, 120 Broadway. New Orleans—A. Baldwin & Co., Ltd. Jacksonville, Florida—D. J. Carrison & Company. San Francisco—F. G. Bryant, 424 Ellis Street. Seattle, Washington—H. W. Starrett, Sunset Engine Company.

Advertising Index will be found on page 110

GIBBS QUALITY

Just a portion of our facilities for boat building, overhauling and repairing are shown in the view above. Notice the various types of boats under construction, and note particularly the new 1200 ton floating dry dock at the right. It is 156 ft. long on the keel blocks and 52 feet between wing walls.

Anything from a little power tender to a good sized coaster, yacht or commercial boat is within our range. We are equipped to perform every operation within our own plant.

Machine shop, joiner shop, paint shop, blacksmith shop, dry dock, marine railway, complete stocks of lumber and other materials, plenty of room, all manned by skilled workmen and directed by experienced boat builders—these are the facilities offered by this company.

Let us tell you some of the advantages of having your boat built or overhauled here in Florida.

BUILDING — OVERHAULING — REPAIRING

Runabouts, Cruisers, Houseboats, Commercial Boats

Estimates on any work furnished on request.

GIBBS GAS ENGINE COMPANY

JACKSONVILLE, FLORIDA

Broncho, a Hand 29-Foot Cruising Runabout

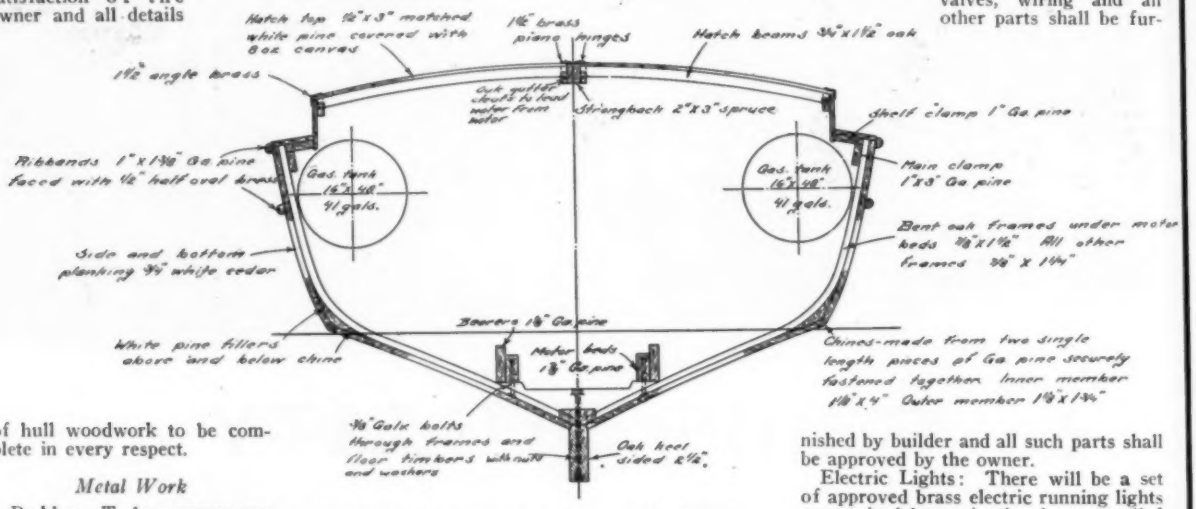
(*Continued from page 25*)

Forward Cabin: Forward of motor compartment will be arranged as indicated with transoms and lockers and water closet. There will be two shelves in the forward end. On each side of raised freeboard there will be two 5-inch hinged port lights as indicated. There will be a hatch in forward deck as shown.

Ribbands: Indicated ribband rails to be of mahogany, 1⅜x1-inch in half round section, fastened as indicated, with screws properly let in and bunged with bungs of same material as rail. Upper ribband to be neatly carried up flush with edge of extended side at break in sheerline and to form neat miter joint with ribband rail extending forward at top edge of raised sheer. Fore and aft ends to be neatly tapered and rounded. Ribbands to be faced with ½-inch half oval brass.

Bitts: There will be brass bitt heads on forward and aft deck as indicated.

In General: All parts of hull outside and all exposed surfaces inside to be carefully planed smooth and thoroughly sandpapered to give a perfectly smooth surface. All work to be done to satisfaction of the owner and all details of hull woodwork to be complete in every respect.


Hatch top 12"x3" matched white pine covered with 8oz. canvas
1½" brass piano hinges
Hatch beams 3¼"x1½" oak
1½" angle brass
Oak gutter chute to lead water from motor
Stringback 2"x3" spruce
Shelf clamp 1" Ga pine
Ribbands 1"x1⅜" Ga pine faced with ½" half oval brass
Gas. tank 16"x48" 41 gals.
Gas. tank 16"x48" 41 gals.
Main clamp 1"x8" Ga pine
Bent oak frames under motor beds ⅞"x1½" All other frames ⅞" x 1¼"
Side and bottom planking ¾" white cedar
Bearers 1⅛" Ga pine
Motor beds 1⅛" Ga pine
White pine fillers above and below chine
Chines-made from two single length pieces of Ga pine securely fastened together. Inner member 1⅛"x4" Outer member 1⅛"x1¾"
⅝" Galv. bolts through frames and floor timbers with nuts and washers
Oak keel sided 6½"

Section at Station 5, cruising runabout Broncho

Metal Work

Rudder: To be a manganese bronze rudder, Hand type No. 431. There will be a suitable thrust bearing to carry weight of rudder on top of port and the head of stock will be finished square. A suitable galvanized iron emergency tiller will be supplied to properly engage same.

Sheaves: Sheaves not less than 3 inches diameter to be fitted properly to lead wheel rope to steerer.

Stuffing-box: To be Mechanical Devices Co. Pattern K. C. bronze to fit shaft, fastened on apron with No. 14 brass screws.

Strut: The indicated strut will be a bronze casting, Hand pattern No. 431.

Steerer: A 17-inch auto steerer with scored drum, to be properly fitted on starboard side of bulkhead, connected with rudder quadrant by ¼-inch diameter Phosphor bronze tiller rope led over specified sheaves and through brass fair leaders on frames back of staving of pit.

Gasoline Tanks: Under motor hatches there will be 2 seamless tinned steel gasoline tanks, or equal, 16 inches diameter x 48 inches long, with two transverse swash plates and standard filler plates. Tanks to feed by gravity. Under aft deck there will be a tank, 14 inches diameter x 54 inches long, with two transverse swash plates, standard filler plug, and ¼-inch up-feed tube gasoline outlet. Tanks to be supported in strong spruce cradles. There will be a brass deck plate over filler in aft tank and forward tanks will fill from engine compartment.

Chocks, Etc.: A pair of 1¼-inch flush type brass flag staff sockets to be fitted on forward and aft decks where indicated. A pair of brass bow chocks to be fitted on forward deck where indicated. Same to be 6-inch size. Stern chocks aft as shown. All details of metal work and hardware to be complete and all parts of polished brass. All fastenings not otherwise specified to be brass screws and all inside joinerwork to be fastened with oval head brass screws.

Miscellaneous Breakwater: On fore deck to be of same stock as curb with brass angle forming backing for miter joint in center. Parts to be fastened from below with brass screws through deck.

Stern Trim: The sides and bottom of stern will be neatly trimmed with 1/16-inch brass, neatly fitted.

Whistle: There will be an electric brass "Klaxon" horn furnished by builder and properly fitted for service.

Flag Staffs: There will be a pair of suitable mahogany flag staffs furnished by the builder.

Ventilator: There will be a 5-inch diameter riveted galvanized iron cowl ventilator fitted forward where shown.

Deck Plates: Polished brass deck plates will be fitted over aft gas tank and rudder stock. Sizes per plans.

Motor and Installation: There will be a four cylinder Model M Van Blerck motor, 1920 type, complete with reverse gear, magneto, carburetor, electric starter, storage battery, bronze shaft and propeller wheel and motor tools supplied by the builder. This motor is to be properly installed by the builder under the direction of the owner. All water piping shall be of brass, all gasoline shall be piped through suitable soft copper tube under cockpit floor. All motor controls shall be properly connected with controls on steering wheel. All piping, pipe fitting, valves, wiring and all other parts shall be furnished by builder and all such parts shall be approved by the owner.

Electric Lights: There will be a set of approved brass electric running lights as required by navigation laws, supplied by the builder, properly fitted with suitable wiring, plugs and plug sockets, with proper connections to storage battery. There will be also an exploring, or trouble lamp, provided by the builder, fitted with suitable cord, plug and plug sockets for use in motor compartment. There will be two dome lights under deck forward of motor.

Painting: Above indicated waterline, the topsides are to be finished in four coats of best white lead paint mixed to give a light gray color. Below waterline, the hull is to be finished with one coat of red lead and oil and two coats of Kirby's bronze bottom paint, or equal. Canvas deck coverings to be painted with three coats of straw color deck paint. The entire inside of hull, below top of chines, to be finished in two coats of red lead and oil. Sides of hull above chine are to be finished in three coats of light tan color paint. All mahogany trimmings to be finished bright with one coat of wood filler and three coats of best marine spar varnish.

Equipment: The builder shall supply and properly fit the following items:

1—Navy type awning cover of 12-oz. khaki cockpit supported on bows of ½-inch brass pipe and ash battens ⅞x1½ inches sewed in pockets in cover, as per plan to be supplied by architect.
1—12-oz. khaki storm boot as per plan to be supplied by architect.
1—25-lb. galvanized kedge anchor.
1—30-fathom 2-inch circumference manila cable.
6—Jacket life preservers, pillow cushions to match seat cushions.
1—Set of seat cushions filled with silk floss covered with tan Chase leather cloth for control seats.
1—Set of cushions as above for forward transoms.
1—Suitable boat pump
4—Cylindrical cork fenders.
1—Pyrene fire extinguisher and bracket.
1—Boat hook, brass mounted.
1—Brass bell.
2—Copies of U. S. Pilot Rules.

Ship Lavatory Combination

CRANE

Plumbing Combinations for Ships

are designed to meet all conditions of service, and afford comfort and convenience in operation.

Sizes and patterns for any desired area are represented, and include bath tubs, closets, wash sinks, showers, shower and heater combinations, water heaters, bathroom accessories, deck fittings, deck drains, scuppers, etc.

We are manufacturers of about 20,000 articles including valves, pipe fittings and steam specialties, made of brass, iron, ferrosteel, cast steel and forged steel in all sizes, for all pressures and all purposes, and are distributors of pipe, heating and plumbing materials.

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CRANE LIMITED MONTREAL, TORONTO, VANCOUVER, WINNIPEG, LONDON, ENG., SYDNEY, N. S. W. QUEBEC, HALIFAX, OTTAWA, CALGARY.

TIMESAVER
BEARING SURFACES FITTED WITHOUT SCRAPING

Perfect Bearing Surfaces

With TIMESAVER Bearing Abrasive Compound, unskilled men now produce perfect bearing surfaces in a quarter the time with a quarter the labor.

TIMESAVER Compound fits any size or type of babbitt, brass or bronze bearing. It is harmless in use for it turns to a lubricant after the cutting is done.

Send **$1.50** for a trial can and make your own tests. Six can cartons, **$9.00.**

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296 Andrews Street, Rochester, N. Y.

Manufacturers M. T. K. Products Co., Seattle, Washington

"JASCO"
SAFETY FIRST
TANK

DID YOU EVER EXAMINE YOUR GASOLINE tank? Ever wonder whether its construction increased or minimized the possibility of a leak—a fire—an explosion—even your own safety?

Equip your boat with one of these everlasting, rivetless, "Safety First" tanks and stop worrying about explosions.

Made of the finest drawn steel—tested and proved—you can take pride in the ownership of a Jasco Tank.

THERE'S A JASCO TANK MADE ESPECIALLY FOR YOUR BOAT.

Write us today. We will gladly send you descriptive literature

JANNEY, STEINMETZ & COMPANY

Main Office, Philadelphia New York Office, Hudson Terminal Bldg.

Eighteenth Race for the American Power-Boat Association Gold Challenge Cup—Detroit River, September 11, 13 and 14, 1920. (3 heats; 30 statute miles each.)

Winning Boat, 1920	Elapsed Time H.M.S.
First heat, Miss America	29:36
Second heat, Miss Detroit V	31:46
Third heat, Miss America	25:44
Total race, Miss America	1:27:07

Fastest Speed 30 Miles Since 1916—Miles Per Hour

	1920	1919	1918	1917	1916
First heat	60.0	43.3	52.1	50.7	46.2
Second heat	56.6	30.3	51.0	56.3	49.5
Third heat	70.0	55.0	53.0	56.5	50.0
Total race (90 miles)	62.0	40.2	51.04	54.14	48.6

1920—Fastest Lap—5 Miles

	First Heat	Second Heat	Third Heat
Miss America	63.6	63.3	71.4
Miss Detroit V	61.9	61.8	61.2
Miss Toronto	....	....	62.2
Miss New Orleans	....	41.3	56.6
Imp	....	....	....

*Fastest Lap Other Years

	1919	1918	1917	1916
First heat	48.0	59.3	52.74	51.20
Second heat	42.4	55.9	59.43	55.35
Third heat	58.5	55.0	59.43	55.78

*Two and a half miles to the lap in 1919, five miles other years.

Former Gold Cup Record for 1 complete heat

Made by Miss Detroit II at Minneapolis in 1917. Speed 56.5 miles per hour.

Former Gold Cup Record for Complete Race (3 heats)

Made by Miss Detroit II at Minneapolis in 1917. Speed 54.14 miles per hour.

Complete Summary of 18th Annual Race for the A. P. B. A. Gold Challenge Trophy—Three Heats of 30 Statute Miles Each—Detroit River, September 11, 13 and 14, 1920.

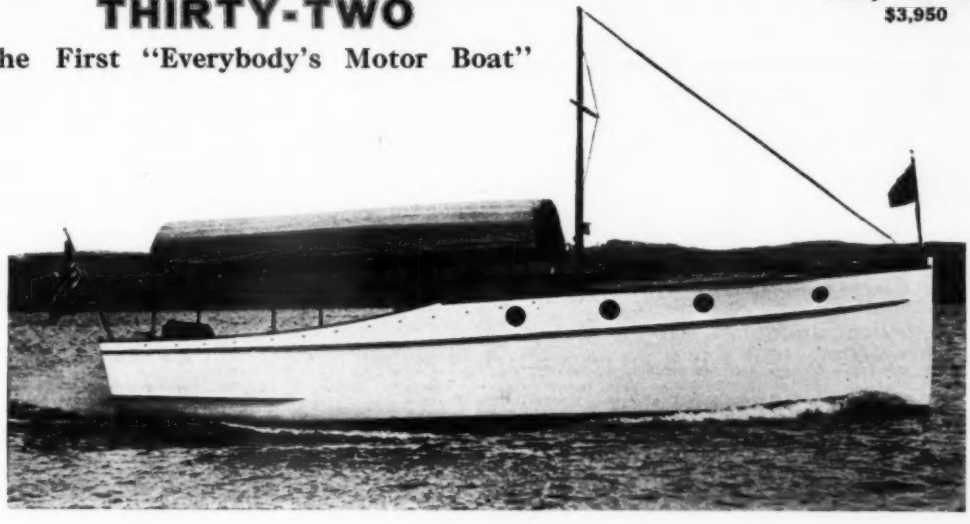
Boat	Club	Time 1st Race	Speed 1st Race	Time 2d Race	Speed 2d Race	Time 3d Race	Speed 3d Race	Time Total Race	Points
Miss America	Detroit Yacht Club	29:36	60.9	31:47	56.65	25:44	70.0	1:27:07	18
Miss Detroit V	Miss Detroit P. B. A.	29:35⅗	60.9	31:46	56.68	31:19	57.5	1:32:40	16
Miss Toronto II	Toronto Motor Boat Club	D.N.S.	....	D.N.S.	.....	29:51	60.4	.....	5
Miss New Orleans	Southern Yacht Club	D.N.F.	....	41:37	43.2	35:43	50.3	.....	9
Imp	Chicago Yacht Club	D.N.S.	....	45:21	40.1	D.N.S.	....	.....	5
Miss Belle Isle	Detroit Boat Club	D.N.F.	....	D.N.S.	....	D.N.S.	....	.....	0

Complete Summary of First Race for Fisher Trophy Representing A. P. B. A. Displacement Boat Championship of America—Detroit, September 11, 13 and 14, 1920. 3 heats of 50 Miles Each.
(Open to displacement runabouts of over 32 feet in length, powered with one or more stock marine motors.)

Boat	Owner	Make of Motor	Time 1st Race	Speed 1st Race	Time 2nd Race	Speed 2nd Race	Time 3d Race	Speed 3d Race	Time Total Race	Speed Total Race	Points
Rainbow	H. B. Greening	Sterling	1:22:57	36.1	1:20:42	37.2	1:21:31	36.8	4:04:30	36.7	36
Snap Shot	J. W. Stroh	Sterling	1:25:58	34.9	1:21:41	36.7	1:22:03	36.6	4:09:02	36.1	27
Dough Boy	J. Kelson	Hall-Scott	1:29:26	33.5	1:28:45	33.8	1:27:09	34.4	4:25:20	33.9	19
Falcon	J. Moore	Hall-Scott	2:17:57	21.7	1:22:23	36.4	withdrew		.....	....	14
Comanche	E. B. Ford	Hall-Scott	1:25:49	35.0	withdrew		D.N.S.	....	.....	....	5
Miss Miami, Jr.	C. G. Fisher	Allison	D.N.S.	....	D.N.S.	....	D.N.S.	....	.....	....	..

INTERNATIONAL
THIRTY-TWO
The First "Everybody's Motor Boat"

32-Ft. Raised Deck Cruiser, Complete, Ready to Cruise $3,950



The Most Popular Cruiser Ever Built

Sales records prove that this standardized 32-ft. cruiser appeals as strongly to experienced yachtsmen as to those who are buying their first boat. She represents standard value in design, construction and equipment, complete, ready to cruise. Standard equipment includes the Kermath "Vanadium 20" 4-cyl. 4 cycle powerplant, electric starter and lights, high-grade marine plumbing, fittings and furnishings.

Standardization and real production methods result in a price very much lower than that of a cruiser of similar character built to special order. For the immediate present, we can meet reasonable demands as to delivery.

The Best Boat Value Available—by a very wide margin

INTERNATIONAL
SHIPBUILDING AND MARINE ENGINEERING CORPORATION
NYACK, NEW YORK, U.S.A.

Send for Illustrated Booklet and Actual Photos

Cabin of the International Thirty-two Raised Deck Cruiser. Berths for four, complete toilet room, fully equipped galley. Full headroom, light and airy and lots of locker space.

IMPORTANT

Those who contemplate the purchase of an INTERNATIONAL THIRTY-TWO for use in the South this Fall and Winter are advised to arrange now for date of delivery, etc. A heavy demand is expected for the cruiser for service in Southern waters, for which she is ideal. We can make definite delivery promises now for Fall.

MOTOR BOATING PRACTICAL HAND-BOOKS

Every motor boatman has long felt the need for a really complete and comprehensive library devoted to their favorite pastime—motor boating. One of the obstacles to the accomplishment of this important work was the difficulty in finding any one writer who could cover the field in its entirety. In presenting the new series of practical hand-books, MoToR BoatinG believes that the problem has been solved at last. These books are edited by Charles F. Chapman, M. E., the editor of MoToR BoatinG, and they are the results of months of untiring effort on his part, together with the best of thousands of suggestions sent to him by motor boatmen themselves. The list of the contents given below will give you some idea of the vast amount of ground covered by these volumes.

Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gears, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom *vs.* Sharp Bilge; What are the Advantages of Flare? Raised Deck *vs.* Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The $1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Boom; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

Practical Motor Boat Building

Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Joiner Between Stem and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shaftlog; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

Practical Things Motor Boatmen Should Know

Volume 3.—Navigation is one of the important subjects covered in volume three of the series. Tells you how to steer, how to increase the factor of safety, and a host of other things relative to the proper running of your boat. The chart and compass are both fully explained in a clear and comprehensive manner. The list of contents will tell you more about it; Advice for the Beginner; Lessons Learned from Experience; Good Things to Know; Increasing the Factor of Safety; Which Way Should the Boat Steer? Why a Boat Steers Badly; Why do Boats Squat? Figuring the Boat's Speed; Ballasting the Cruiser; Getting Off Bottom; To Ride Out a Storm in a Motor Boat; The Why and How of Storm Oil; Preventing Fire; Handling Ground Tackle; Government Charts; Stowing the Anchor on a Cruiser; Diminishing Deviation; Preventing Electrolysis; Stowing and Using Charts; How to Make a Chart Case; Keeping a Motor Boat's Log; How to Make a Sextant; Tides and Tidal Waters; Taking Her Through the Canals; The Best All Round Dinghy; Towing the Tender; Handling the Dory in a Seaway; Getting the Tender Aboard; Planning for a Cruise; Equipping for a Cruise; Equipment for Offshore Cruising; Novel Events for Regatta Day; Handicapping; The Object of a Handicap Rule; Laying Off a Race Course; Measuring the Length of a Race Course; Preparing a Boat's Bottom for a Race; How to Build a Turning Buoy; Starting Boats in a Race; Stowing the Signal Flags; Fitting a Gun Mount; A Fish Box for Your Cruiser; A Cabin Wall Rack.

Practical Marine Motors

Volume 4.—All about the marine motor; what it should and should not be. Tells why the automobile engine is unsuccessful in marine work. The best location for your engine, the ideal engine bed, the fuel tank, exhaust and countless other suggestions that will enable you to get the best results from your power plant. List of contents: Purchasing a Marine Motor; How Many Cylinders? Power per Cylinder; High Speed *vs.* Heavy Duty; Long Stroke *vs.* Short Stroke; Correct Motor Design; Changes in One's Power Plant; The Things that Cause Vibration; The Automobile Engine for a Boat; The Best Position for the Motor; The Ideal Engine Compartment; Placing the Engine in the Hull; Installing a Motor in a Canoe; Installing Power in a Yawl; Converting a "Banker" to Power Engine Installation in a Hydroplane; Putting Power in the Rowboat; Limits of Shaft Inclination; Constructing the Engine Bed; Getting the Motor Aboard; Lining Up the Propeller Shaft; The Best Exhaust; Mufflers *vs.* Under-Water Exhausts; Installing an Under-Water Exhaust; Primary Batteries for Ignition; Keeping the Ignition System Dry; Installing a High-Tension Magneto; From Make and Break to Jump Spark; Installing the Gasoline Tanks; Taking Care of Extra Gasoline; Spark and Throttle Controls; Constructing a Rear Starter; Propeller for Engine and Hull; Installing a Universal Joint; Gearing Motor to Propeller Shaft; The Automobile Throttle; Harnessing the Main Engine; Rebabbitting a Worn Bearing; Should Fuel Line be Inside or Outside.

Practical Motor Operation and Maintenance

Volume 5.—One of the most valuable books of the entire set. Your motor's ills and how to cure them. This volume tells you how to adjust your carburetor, how to fit piston rings, how to remedy poor compression and a number of other things that will enable you to doctor your own motor. List of contents: Locating the Motor's Troubles; The Overheated Motor; Starting in Cold Weather; Overhauling a Marine Motor; How to Save Fuel; The Fuel Situation; Using Low Grade Fuel; How to Run on Kerosene; Supplying the Fuel to the Carburetor; Adjusting the Carburetor; Cleaning the Fuel Tanks; Cleaning the Gasoline Line; Stopping Up the Leak in the Tank; A Home-Made Gasoline Gauge; Carrying an Extra Supply of Oil; Mixing the Fuel and Lubricant; Remedying Leaky Compression; Killing the Carbon Jinx; Tool and Spare Parts to Carry; Removing and Replacing Piston Rings; Repairing a Leaky Cylinder; Grinding a Motor's Valves; Setting the Valves; Timing the Ignition System; Cleaning the Water Jacket; Making and Fitting a Gasket; Patching Up a Bearing; Straightening the Sprung Shaft; Truing a Bent Propeller; Removing the Flywheel; Separating Couplings and Pipe Fittings; Changing the Shaft Hole Location; Utilizing the Exhaust; Disposing of the Bilge Water; Heating a Small Cruiser's Cabin; Operating the Outboard Motor; The Clean and Quiet Boat; Charging a Storage Battery; When the Motor Stops Unexpectedly; Making a Unit Power Plant.

Practical Suggestions for Handling, Fitting Out and Caring for the Boat

Volume 6.—This volume is an especially valuable one. You will find in it points covering the care of your boat that you never dreamed of before. Whether you are a beginner or a finished expert this book will give you a better knowledge of the handling of your craft than you can imagine. List of contents: Putting the Boat into Commission; Fitting Out a Thirty-Footer; Suggestions for the Beginner; Refinishing Bright Work; Keeping the Wood Surface Bright; Putting the Boat Out of Commission; Laying Up an Unsheltered Boat; Hauling Out for the Winter; Covering the Boat for the Winter; Launching from a Wharf; Correcting Faults; Lengthening Out the Boat; Moorings and Buoys; Taking Steps to Safeguard the Anchor; What to Use in the Bilge; Preserving the Wood in Boats; Emergency Rigs for the Cruiser; Auxiliary Sails for the Cruiser; Providing an Emergency Rudder; Preparing for Southern Waters; Stopping the Troublesome Leak; Replacing a Broken Plank; Removing Broken Lag Screws; Raising the Boat's Stern; Clearing the Propeller; Protecting the Bow and Stern; Open Boat Sleeping Quarters; Ventilating the Cabin of Small Cruisers; Converting the Open Boat to a Cruiser; Making a Cover for the Open Boat; Preventing Electrolysis; Building a Club Float; A Floating Boathouse; Constructing a Landing Stage; Building the Marine; Keeping the Thief Out; A Place for Your Shore Clothes; Stowing for Life Preservers; The Winter's Alterations; What Changes Shall I Make; The Satisfactory Bilge Pump; The Pressure Water System; Making a Pelorus; Your Storm Curtains; Life-Saving Equipment; The Absent Owner's Anchor Light; Mounting the Reverse Gear.

Price $1.50 Per Volume, or $7.50 Per Set of Six Volumes of Over 1,000 Pages

The books measure 7 x 10 inches and are handsomely bound in cloth. Each volume is fully illustrated and printed in clear type on fine paper.

MoToR BoatinG **119 West 40th Street, New York**

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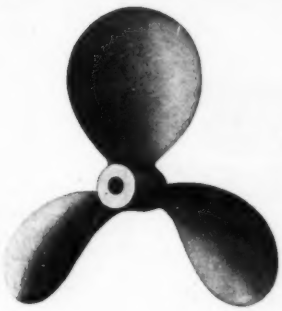
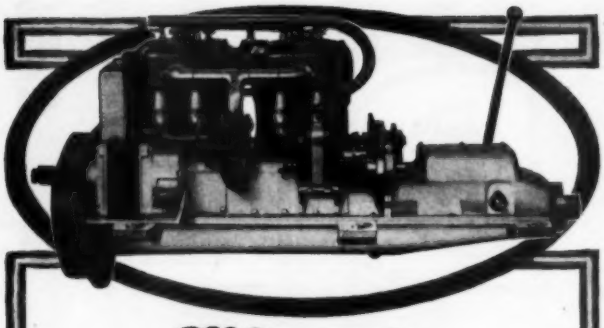
HYDE PROPELLERS



FOR your boat—whether it is hydroplane, runabout, cruiser or work boat—there is a Hyde Turbine Type Propeller that will give you the utmost in speed and power.

Write for our latest catalog "Propeller Efficiency". It also contains information of interest to every motor boat owner. A copy, together with data sheet, will be mailed upon request.

HYDE WINDLASS COMPANY
BATH, MAINE



Wisconsin

CRUISING pleasure is not complete without that feeling of confidence in the dependability of your engine, inspired by the knowledge that your motor boat is Wisconsin-powered.

Surplus power and endurance assure you of easier speed even under the most trying conditions. Wisconsin Motors cost more because of the extra care taken in their manufacture. Each one is run-in, torn down and rigidly inspected before it is reassembled. Write for specifications.

WISCONSIN MOTOR MFG. CO.
Sta. A, Dept. 302 Milwaukee, Wis.

DISTRIBUTORS:
New York Branch: T. M. Fenner, Factory Representative, 21 Park Row, New York, N. Y.
California Distributor: Earl P. Cooper Co., Los Angeles, Cal.
Northwest Distributor: Chandler-Dunlap Co., Seattle, Wash.

TIEBOUT'S

LOCKS AND LATCHES FOR DOORS AND HATCHES

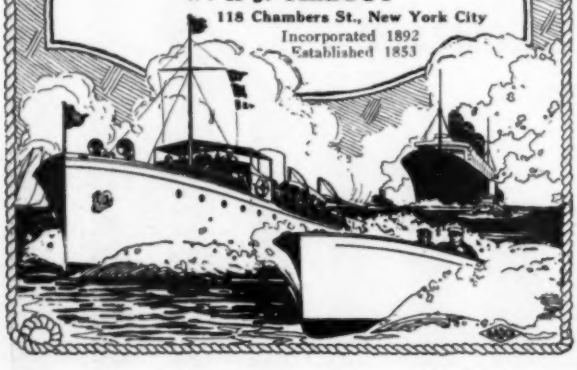
Good Reputation

A firm that has been in business in the same neighborhood for four generations naturally acquires a reputation. Whether it is a good one or not depends upon how it has served its customers.

We number among our valued clientele of today the friends we made four generations ago. We wish to thank them for their continued confidence and patronage.

To all of our clients, old and new, we wish to assure the same fair dealings and efficient service that has made our reputation one to be jealously guarded and faithfully fostered.

W. & J. TIEBOUT
118 Chambers St., New York City
Incorporated 1892
Established 1853



Two New Motor Boating Hand Books Ready

THE IDEAL SERIES

Two new MoToR BoatinG Handbooks are now ready for delivery. The two new books are known as the Ideal Series, and they fill a gap in our otherwise complete line of books for Motor Boatmen.

The new books deal exclusively with designing and building small motor boats. The titles are

Vol. I—Designs of Ideal Motor Boats.

This volume describes in detail how to design a motor boat. It also contains complete plans of 30 Cruisers, Runabouts and Auxiliaries. The plans include lines, table of offsets, interior plans, profiles, construction details, etc. There is no book published at the present time which describes in everyday language the details of designing a boat according to your own tastes. The plans of Ideal Cruisers, Runabouts and Auxiliaries are complete in every particular. They include the best of the plans published in MoToR BoatinG during the past several years. The plans include boats of from 20 feet in length up to 46 feet. The drawings are all to scale and large size.

Vol. II—How to Build Sixteen Ideal Motor Boat Boats.

This book gives complete information for building the following boats:

9-foot dinghy
10-foot mark boat
12-foot outboard motor boat
12-foot speed boat
12-foot bangabout
13-foot sea skiff
16-foot sharpie
18-foot runabout
20-foot monoplane
20-foot hydro-runabout
20-foot knockabout
20-foot tunnel stern
22-foot V-bottom runabout
25-foot V-bottom cruiser
25-foot round-bottom cruiser
28-foot cruiser (Consort II)

Every article is fully illustrated with working drawings and no information or instructions are missing which would be of assistance to the novice to build his own boat.

Both of the Ideal Books are printed in large type on extra fine paper. They have been edited by Charles F. Chapman, editor of MoToR BoatinG.

Price $2.00 each or the two books for $3.00

MOTOR BOATING
119 West 40th Street New York

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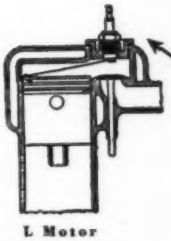
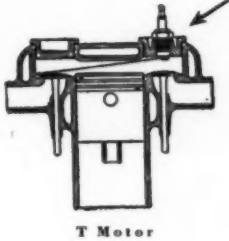
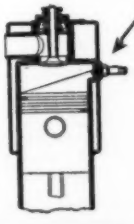
The Secret of Frisbie Power



L Motor



T Motor



Frisbie VALVE-IN-HEAD MOTOR

WONDER is often expressed at the remarkable power developed by our motors.

The secret is simple. It lies in Frisbie Valve-in-Head construction.

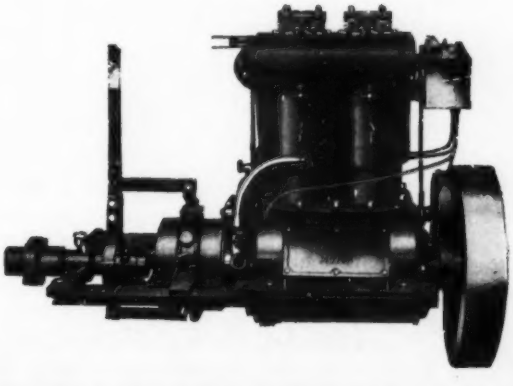
In the L and T types the spark fires into a side pocket and the full force of the explosion cannot be exerted on the piston head.

In the Frisbie, with all the valves in the cylinder heads, the spark plug is placed so as to fire directly into the combustion chamber and right over the piston head. Note further that the absence of all pockets in the Frisbie Valve-in-Head Motor confines the entire explosion to the area immediately over the piston head so that the *full driving power* of each explosion is exerted *squarely on top of the piston.*

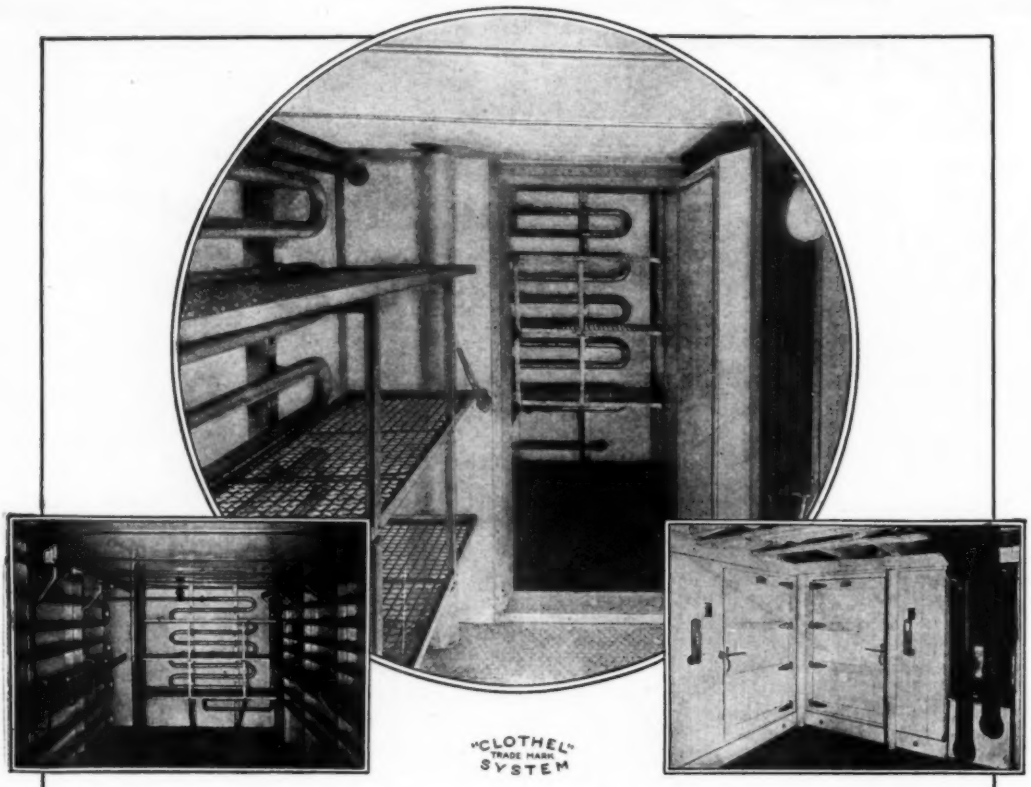
Frisbie Valve-in-Head Motors are made in five sizes: 1 to 6 cylinders—5 to 75 H.P. Send for catalog and name of nearest dealer.

Frisbie Motor Company

7 College St., Middletown, Conn.



Frisbie an' I



Automatic Refrigeration for Your Boats

FOR years Clothel Refrigeration has given perfect service on U. S. Government boats, private yachts and other vessels of varied types and tonnage.

Above are illustrations of one of the latest Clothel installations, that of Lyndonia II, constructed by the Consolidated Ship Building Company for Cyrus H. Curtis. It is the second Curtis yacht to carry Clothel Refrigeration, ample proof of Clothel efficiency.

On Lyndonia II there are four separate compartments for meat, fish, vegetables, and dairy products, with capacity sufficient for an eight months' voyage. Additional compartments are installed in the chef's pantry. There is also an ice making plant that produces 200 lbs. daily.

The entire system is operated automatically from the engine room where the Clothel electrical plant is located.

Exterior thermometers show interior temperatures. Signal lights indicate to engineer whether doors are open or closed. Uniformly low temperatures are maintained at all times, whether boat is cruising in northern waters or the hot seas of the tropics.

Estimates furnished. Write for particulars.

The Clothel Refrigerating Company
61 Broadway, New York City
17 St. John St., Montreal, Canada

REPRESENTATIVES:
Pacific Coast—Ford & Geirrine, San Francisco Europe—Capt. Paul Koster, Paris China—J. P. Sartz, Shanghai
France—Sautier-Harle Co., Paris Scandinavia and Finland—Sunde & Co., Christiania

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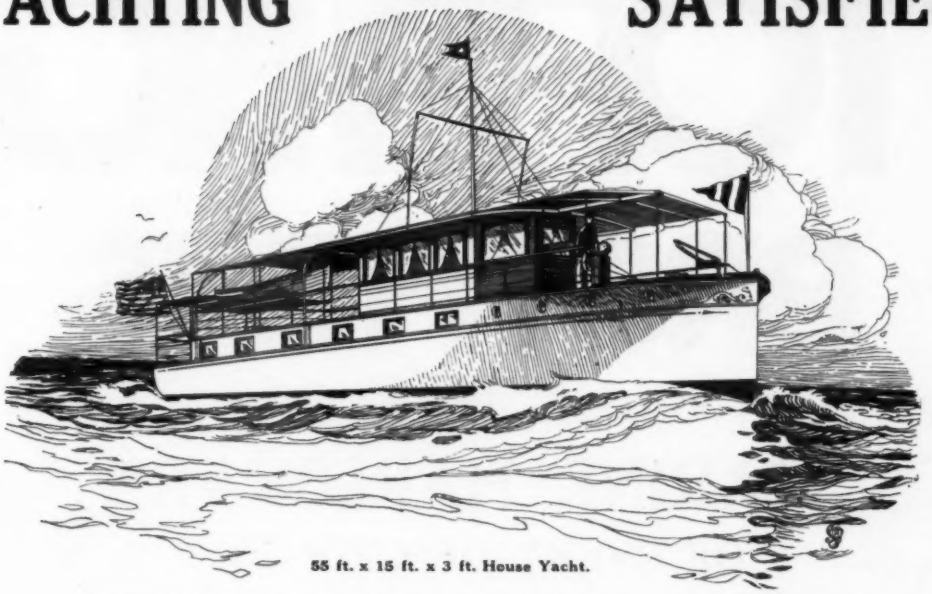
MAKERS OF FINE YACHTS.

YACHTING THAT SATISFIES



55 ft. x 15 ft. x 3 ft. House Yacht.

This will be a big yachting year; why not enjoy the wonderful comfort of a houseboat? Economical in operation. A boat on which guests, owner and crew are all

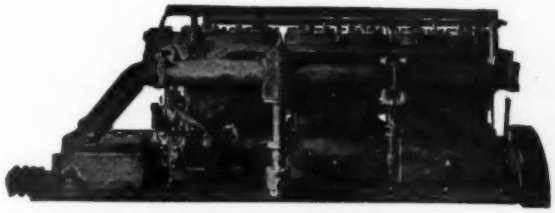
SATISFIED

FOR SALE OR CHARTER

Two 85 ft. House Yachts are now in commission, and two 73 ft. House Yachts will be ready for Fall delivery. Write or phone for complete specifications.

20th CENTURY MOTORS

Continuous Satisfaction for Nineteen Years is our Record



Built in sizes:
2-Cyl. . . . 15-20 H.P.
4-Cyl. . . . 40-50 H.P.
6-Cyl. . . . 65-75 H.P.
All 6½" Bore x 8½" Stroke

HEAVY DUTY TYPE

6 cyl. 65-75 H. P.

YACHTS AND HOUSE BOATS

NEW YORK YACHT, LAUNCH & ENGINE CO.
BUILDERS
MORRIS HEIGHTS, NEW YORK CITY.

TOPPING BROTHERS

Established 1885

MARINE HARDWARE
OF EVERY DESCRIPTION

Shipbuilding Supplies — Cabin Hardware — Cargo, Boom and Mast Fittings

PORT LIGHTS, ALL DESIGNS AND SIZES

Calking Irons
Ship Augers
Anchors

Treenail Augers
Brass Bolts
Ship Clamps

Anchor and Sailing Lights
Ship Scrapers
Rowlocks

CLEATS: Cast Iron, Galvanized, Brass

ROPE: Wire, Manila, Tiller

THIMBLES: Wire Rope, Sail, Brass

ANCHORS: Loose Stock, Trawl, Folding

BLOCKS: Mall, Iron, Deck, Yacht

CHAIN
SHACKLES

Mast Hoops
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Life Preservers

Deck Plates
Rudders

Clinch Rings
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HARTHAN PROPELLERS

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Fenders
Bilge Pumps
Pitch

Chain Hooks
Eye Bolts
Snap Hooks

SHIP CARPENTERS' TOOLS

Bow Chocks
Stern Chocks
Boat Nails
Marine Engines
and Equipment

122 Chambers Street
New York City

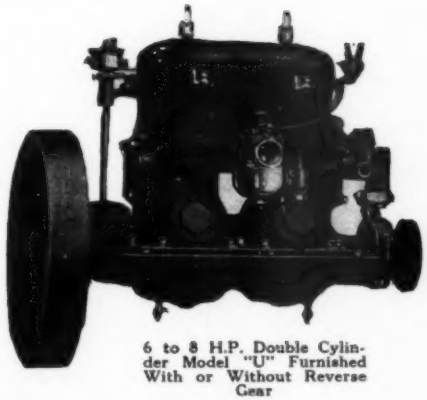
Advertising Index will be found on page 110

Gray Marine Motors for 1920

"the engine with the big crank shaft"

New "V-M" 4-cycle valve-in-head motor furnished with Bosch Magneto with Impulse Starter—no batteries required — also furnished with Electric Starter.

This new model V-M 4 cycle engine marks an epoch in Marine Motor History



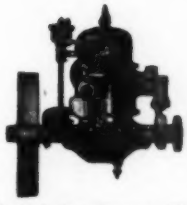
6 to 8 H.P. Double Cylinder Model "U" Furnished With or Without Reverse Gear

OVERHEAD valve marine-motors are acknowledged to be of greater efficiency and power than other types and in the Gray the ultimate or valve-in-head marine motor perfection has been attained.

The Gray is designed to operate on either gasoline or kerosene, it cannot backfire, it burns the fuel keenly with practically no carbon, soot, smoke or odor and lubrication troubles are unheard of in the Gray.

Our Hot-Spot Cylinder Head gasifies thoroughly the fuel used and renders it completely combustible.

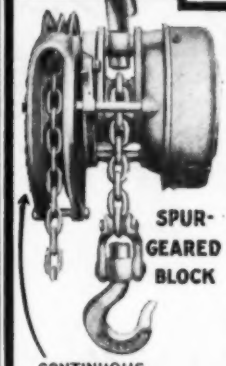
Gray Two-Cycle Motors are built in models from 3 to 8 h. p. Gray Four-Cycle Motors are built in three sizes, 10 to 50 h. p. Write for FREE catalog.



Selected for Canoes, Row Boats and Small Launches. 3-8 H.P. 2-cycle Gray Motor. Standard the World Over.

GRAY MOTOR COMPANY 2106 MACK AVE., **Detroit, Mich.**

YALE



**Another Safety Feature—
The Hand Chain
Cannot Foul.**

IN such an operation as setting a rudder-post or lifting out a heavy engine part, it is essential that the hoist be under positive control at all times.

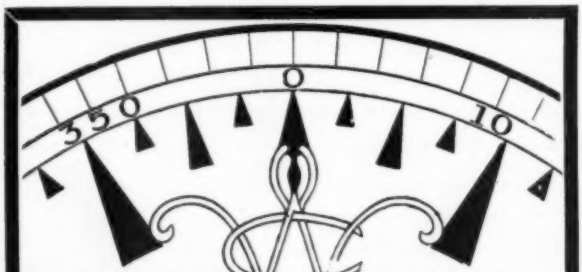
The Continuous Hand Chain Guide—a feature of the Yale Spur-Geared Chain Block,—guides the hand chain positively, and prevents fouling of the chain as it passes over the wheel, regardless of the direction or speed. This means that there can be no gagging of the hand chain; and that no time is lost by the operator.

Yale Chain Blocks are carried in stock by your Mill Supply or Hardware Dealer.

Have you received your catalog of Chain Blocks, Electric Hoists and Trolley Systems?

The Yale & Towne Mfg. Co.,
Makers of the Yale Locks
General Offices and Works:
Stamford Connecticut

Yale Made is Yale Marked

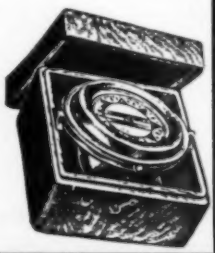


POINTS TRUE!

AS your compass guides you Safely to port, so the W. C. guides you to Dependable Motor Boat Fittings. The

Oil Compass

is constructed on scientific principles by skillful workmen. Its action, accuracy and steadiness are guaranteed under all conditions. Built to withstand the jars of power craft, the dial is adjusted to remain steady in a sea way and responds quickly to a change in direction. Every Compass carefully tested before shipping.
2, 2½, 3, 4, and 5 inch dials.
At your dealer's or write us.



Send 20c in stamps for celluloid Course Protractor. "Compass Talks and Tests" sent free. Tells how to box the compass, contains deviation tables, and other practical information fo compass users.

WILCOX, CRITTENDEN & CO., Inc.
4 South Main Street
Middletown, Conn.

Van Blerck Revolutionizes Carburetion

(*Continued from page* 22)

the walls of the manifold and makes it practically impossible to get even gasoline distribution to the cylinders at the lower speeds, forming puddles of raw gas at different points and permitting the ungasified air to travel to other points.

As a result, one or two of the cylinders may be getting practically fresh air, while the balance run exceedingly rich, due to puddles mentioned—or may be getting the correct mixture, as the case may be. For example, on a six-cylinder motor, cylinders one and three may be getting the correct mixture; cylinders two and four running rich; and cylinders five and six running so light that the mixtures fail to explode or give a weak explosion that is hardly noticeable. When the throttle is opened or the control used severely, the tendency in the two light cylinders is to back-fire in the carbureter with the result that the motor stalls. Many a boat owner has had the uncomfortable and unhappy experience of running up to a dock a little too fast, throwing his reverse gear into reverse and having his motor stall simply caused by conditions as mentioned existing. He has also, through the quick opening of the throttle and the advance of the motor from low speed to high speed instantly, had the same experience, while in high speed his engine may run satisfactorily.

Gas velocities in the intake manifold of a high-speed marine motor frequently reach 100 m.p.h. This high speed is sufficient to overcome the inertia of the raw gasoline and mix it properly with the air, hence no difficulties are experienced while the motor is operating at high speeds. At lower speeds, however, the velocity of the air does not overcome the inertia of the gasoline and a good mixture is not obtained.

Therefore, the failure to obtain prompt response when opening the throttle quickly when using a cold wet mixture is undoubtedly due to the fact that the air accelerates more quickly than the liquid with the result that the engine either stalls or back-fires. When a dry mixture is used at low speeds, the throttle can be thrown wide open with instant response.

Spark plug fouling is another attribute of poor gasoline. Repeated experiments have shown that such fouling in a majority of cases is not due to over-oiling, as commonly supposed, but to the presence of wet fuel on the plug, which in connection with the small amount of carbon that is formed on the porcelain apparently has the property of making the surface a sufficiently good conductor to enable the high-tension current to leak over the surface of the porcelain rather than jump the gap. If the mixture is introduced into the cylinders in a dry state and does not condense afterward, it is obvious that no wet fuel can appear on the porcelain.

The third principal result of using present day fuel with present day carburetion methods is the contamination of the lubricating oil by fuel which is not consumed in the combustion chamber by reason of condensation on the cylinder walls and which passes down by the pistons and into the crankcase, thus causing a dilution of the lubricating oil and eventually leading to burned out bearings and other serious troubles.

The Van Blerck engineers tried out various forms of heated manifolds, hot spot manifolds, etc., in the endeavor to take the wet mixture as it ascends from the carbureter and turn it into a dry mixture by application of heat before its entrance into the combustion chamber. They utilized to the utmost extent heat contained in the exhaust gases, but it was found that if enough heat was obtained to properly gasify the mixture at low speeds, at higher speeds the excessive heat interfered with the volumetric efficiency of the motor and reduced the maximum horsepower accordingly. Hence, any type of exhaust heated manifold designed to give the required heat at medium and low speeds to produce a dry gas was a serious obstacle to maximum power at high speed and therefore impractical.

Hot water and electrical heating were also found impractical owing to the high temperature required at low engine speeds in the case of the water and the large consumption of current necessary in the case of electricity. It was discovered that the application of a blow torch on the distribution point on the inlet manifold gave sufficient heat at this point to carry the gas in suspension to each of the cylinders and produced a perfectly even distribution of a hot, dry gas and eliminated all of the difficulties experienced with the present day grade of fuel with one operation. This instigated the design and completion to perfection of one of the cleverest developments in automotive history and is so simple and automatic in its operation as to be perfectly reliable under the most severe tests it has been subjected to over a period of many months.

The principle of the Van Blerck Fuelizer is to take advantage of the vacuum existing on the engine side of the throttle at low engine speeds, taking gas from a small carbureter at the side of the main carbureter by means of several small holes located in the manifold above the throttle and inside of a suitable jacket, passing it through a burner and igniting it by means of a spark plug which is operated from a separate coil in series

(*Continued on page* 106)

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Hacker-Craft

Runabouts Exclusively

Plan Now for Next Summer

YOU who have "put off" building your boat until you find it too late to build for this season's use—

NOW, get into communication with

HACKER BOAT CO.

and determine what you want for next year.

WE have a complete stock of Hacker Designs covering any type of boat you may need.

The plans are sold at a price commensurate with their efficiency and pleasure giving qualities.

Build your own boat for next year

using a

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START NOW so as to allow plenty of time for an early launching in 1921.

Complete plans, working drawings and instruction sheet in every instance. Get our descriptive folders.

HACKER BOAT CO. - DETROIT, MICH.

ASTORIA MAHOGANY

LUMBER & VENEERS

One of many steam vats at the Astoria Mills

Cooked!

After mahogany logs have been selected for veneer making, they are placed in huge vats and cooked with live steam for many hours before being sent to the veneer machines. Great attention is paid to this process, various logs being cooked for varying periods of time in order to ensure uniform softening.

The resultant uniform quality of mahogany veneer is one of the factors which, over a period of nearly half a century, have made us the largest complete mahogany lumber and veneer organization in this country.

Astoria Mahogany Company, Inc.

1031 Steinway Ave., Long Island City, N. Y.

Successors to

Huddleston-Marsh Mahogany Co. Astoria Veneer Mills and Dock Co. F. W. Kirch, Inc.

Mills and Yards, Long Island City, New York

BRANCHES—44 North Market Avenue, Grand Rapids, Mich. 2256 Lumber Street, Chicago, Ill.

Van Blerck Revolutionizes Carburetion

(*Continued from page* 104)

with the ignition. The flame from this burner applies the necessary heat at the distribution point of the manifold. In other words, the same force is used to draw the mixed gas from the small carbureter through the burner as is used to lift the gasoline from the rear tank to the small tank on the dash by the well-known vacuum feed commonly used in automobiles.

It is immediately evident that this general scheme works to its maximum efficiency under low throttle and light load conditions as an intense heat is generated very promptly under these conditions which are obtained when starting up, idling, running at low speeds, etc.

On the other hand, under wide open throttle conditions when it is desired to maintain the volumetric efficiency of the engine as high as possible, but a very little mixture passes through this shunt passage and a negligible amount of heat is produced in the burner. Of course, the reason that the mixture need not be heated for wide open throttle conditions is that combustion is largely assisted by the increased turbulence, increased gas speeds and naturally higher jacket-water temperature.

There are four main units in this device which combine to get the desired results. They are briefly as follows:

1. A special inlet manifold which has a suitable jacket at the point of distribution just above the throttle.
2. A burner which is attached to the combustion jacket.
3. A vaporizer, or miniature carbureter, which is used to furnish the mixture for the burner.
4. An auxiliary coil used in series with the ignition coil.
5. A spark plug.

The manifold as illustrated is a standard Van Blerck as fitted to a Model M-6 Van Blerck engine except for the additional jacket used for the flame which communicates with the main intake passages through five small holes, distributed over the surface of the manifold inside of the jacket, distributing the flame over the surface accordingly, the proportions being such that at no time does the burnt gas come into contact with the new mixture at a sufficiently high temperature to pre-ignite the mixture.

The burner body is fitted to the manifold as shown, and in the burner body there is formed a combustion chamber into which a spark plug is fitted with a wide gap, as well as an observation window of heat-resisting glass which permits the action of the burner to be observed at all times. The mixture from the vaporizer is supplied by a small copper pipe and enters the combustion chamber after passing through a hole in the connection in the middle of the burner and through a screen. The purpose of this screen is to assist in the atomization and even distribution of the incoming mixture. The mixture is supplied by the fuelizer. This fuelizer is intended to function as a carbureter through a limited range of depressions. It is constructed on the general principles embodied in several types of plain tube carbureters and relies on the fact that a submerged jet exposed to atmospheric pressure will feed a fixed quantity of fuel, and that by suitable control of the depression over this jet the flow of the fuel can be accelerated in just the degree required for an increasing suction.

In operation, when the engine is idling, combustion takes place in the burner silently and continuously and a bluish green flame completely fills the combustion chamber. This flame diminishes in intensity as the throttle is opened and the depression in the main intake header is thereby decreased, the general result being that for ordinary operating conditions a mixture temperature of 150 to 180 degrees F. is maintained, giving perfect distribution, excellent acceleration, absence of spark plug fouling and elimination of dilution of lubricating oil in the crankcase. In other words, this device maintains a maximum heat at low engine speeds, when heat is so necessary. At higher speeds and wider throttle opening the influence of the combustion heater gradually decreases on account of the vacuum being reduced until at wide open throttle it is practically out of action, which is exactly the condition desired.

It is very difficult to explain or illustrate how really wonderfully this little device works, what a tremendous improvement it makes in the operation of a motor. All Van Blerck engines now coming through the factory are equipped with the Van Blerck Fuelizer and several boats actually have Van Blerck engines installed with this equipment on them. In recent tests on the Great Lakes Express Cruiser Good-Will it was possible to operate this boat over a range of speed of 2½ to 25 miles without any stalling, backfiring or spitting. It was possible to throw the throttle from dead slow to full ahead immediately and have the motor take the load without hesitation. Also the Hand Cruiser Altair, fitted with this device, controls from 2¼ to 26 miles an hour in the same manner, making it possible for the owner of an express cruiser today to drive at trolling or maximum speeds with a high speed marine engine.

It typifies one of the biggest advances yet made in engine equipment and the increasing of engine efficiency; it solves the bug-bear of poor fuel.

Advertising Index will be found on page 110

The Winners

MISS AMERICA captured the Harmsworth Trophy in straight heats and established a new world's competition record.

A pair of *Joes Duplex Drive Reverse Gears* handled the 900 H.P. from her two twin six Liberty engines that drove her to victory.

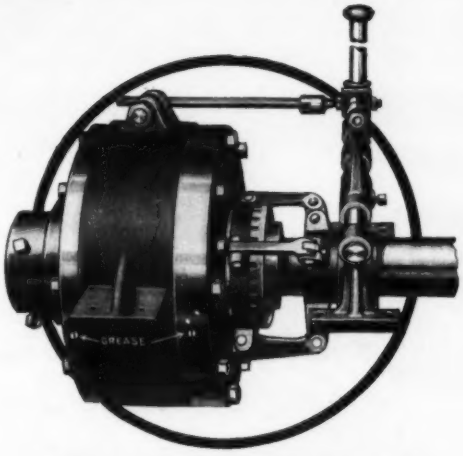
Miss Detroit V, her sister entry, who also outclassed the English boats, was equipped with Joes Gears.

To race boat owners it is a significant fact that nearly all of the important races in recent years have been won by boats that depended upon Joes Gears for their power transmission.

To work boat owners Joes Gears furnish the same smooth, dependable transmission of power, with a ratio of reverse speed that makes it possible to reverse instantly from full speed ahead to practically full speed astern, and enables them to handle their boats effectively under all conditions.

Write for catalog describing Joes Gears for every need and speed, Safety Rear Starters, One-Way Clutches, etc.

The Snow & Petrelli Mfg. Co.
156-B Brewery Street, New Haven, Conn.



JOES
REVERSE
GEAR

80%—88% Reverse Speed Ratio

AGENTS

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Philadelphia, Pa.—W. E. Gochenaur Mfg. Co., 631 Arch St.
Chicago, Ill.—W. L. Masters, 229 N. State St.
Seattle, Wash.—Pacific Marine Engine Co.
Southern California—Fellows & Stewart, Inc., Wilmington, Calif.
San Francisco—A. G. Hebgen, 440 Market St.
Toronto, Canada—A. R. Williams Machinery Co.
Montreal, Canada—The Pyke Motor & Yacht Co.
England—J. King & Co., 10 Church Row, Limehouse, E. London.
Norway—Arendahl Motor & Machine Co., Arendahl.

Champion
Dependable Spark Plugs

Safe at Sea

There are two kinds of boat owners—

Those who *hope* they will not have engine trouble—

And those who use Champion Spark Plugs.

In the abnormal strength of Champion No. 3450 Insulator you have definite assurance of trustworthy service. This famous insulator is unaffected by marine engine vibration and temperature changes which ordinarily produce spark plug difficulties.

Another great Champion improvement is our patented asbestos gasket construction.

There is a Champion Spark Plug specially designed for the type of engine in your craft.

Be sure the name Champion is on the Insulator and the World Trade Mark on the Box.

J. A. S. 43, ⅞-18
Price $1.00

Champion Spark Plug Company
Toledo, Ohio

Champion Spark Plug Company of Canada, Ltd., Windsor, Ontario

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OUTSIDE to FLORIDA in the WINTER

is a pretty good test of the reliability of an engine

"ROSEMAR," 45 x 11, owned by Earle L. Ovington, the well-known aviator.

On board
ROSEMAR

Atlantic City, N. J., July 14th, 1920.

Fay & Bowen Engine Co., Geneva, N. Y.

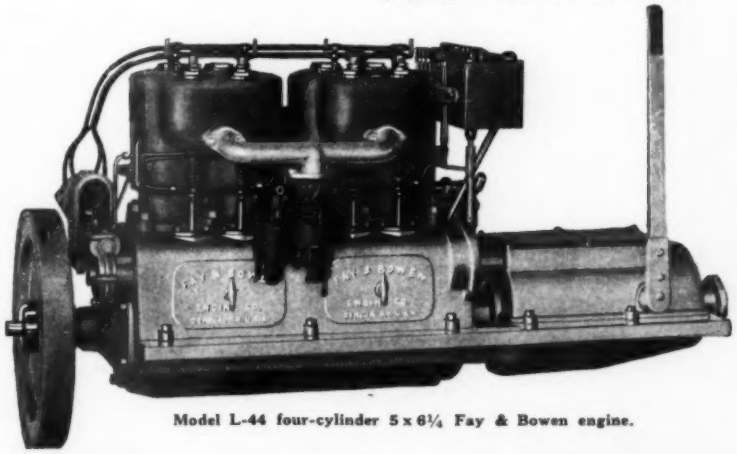
Gentlemen:—I've just returned from a six months' trip on my gas yacht Rosemar fitted with one of your L-44 four-cylinder forty-five horse power engines.

The engine installation was complete on January fifteenth, we tested it the sixteenth and I started on the seventeenth for the south.

The inside route was frozen when we started and so it was outside or not at all. Against every advice we went outside. People said it was suicide, particularly with a new motor.

Through three weeks of northeast gales, snow, sleet, hail and rain we beat down the coast. Many times motor failure would have meant serious danger, if not sure death. But the little Fay & Bowen never missed a single explosion all the way down. Furthermore, it ran like a clock during our entire stay in Florida and all the way back.

Very truly yours,
(Signed) EARLE L. OVINGTON.



Model L-44 four-cylinder 5 x 6¼ Fay & Bowen engine.

Fay & Bowen Engine Company

104 Lake Street GENEVA, N. Y. U. S. A.

NEW YORK: 44 Third Ave., at 10th St., Sutter Bros., Representatives.
PHILADELPHIA: 116 Walnut St., Marine Equipment & Supply Co., Representatives.
BOSTON: 100 Atlantic Ave., C. B. Hamblen & Co., Representatives.
CANADA: Brockville, Ont., St. Lawrence Engine Co., Representatives.

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The WYMAN-GORDON RECORD for efficiency can be read in the reorders of leading manufacturers; in the steady adherence of the most exacting customers year after year.

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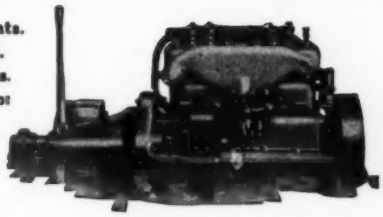

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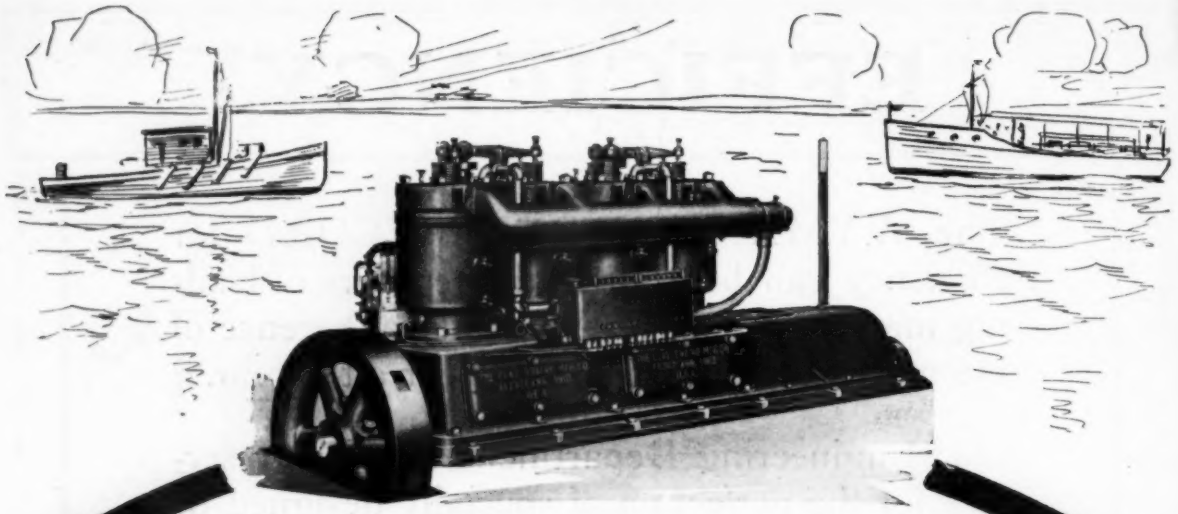
Swim with the "Liberty" Swimming Belt

Learn to swim in half an hour. Just make the strokes,—the "Liberty" will hold you up. They make a beginner a swimmer — a swimmer an expert.

Your Dealer will Supply You. $2.00 by Mail.

YOUR DEALER CARRIES MASTEN EQUIPMENT.

G. H. MASTEN COMPANY, Inc., New York City
Display Showroom, 38 East 9th Street, ½ block West of Wanamaker's



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Heavy Duty Engines for Hard Work

Every season more owners of work boats and heavy cruisers are coming to realize that a slow speed heavy duty engine is more economical and far more satisfactory in every way for any job where there's real work to be done. Fancy paint and nickel plate, racing records and selling features, all impress the first-time buyer, but the experienced boatman is more interested in power and what's back of that power.

Honest Clays are honest in performance as well as in name. They are honestly built with the best of workmanship and materials, and the ample dimensions of cylinders, bearings, crankshafts, etc., that spell reliability and continued satisfaction.

Perhaps you'll find it more economical to install an Honest Clay now than to try and get another season's service out of your old engine. Let us talk it over with you.

The new Model "R" line of Honest Clays includes the following—

Single Cylinder	**6 H.P.**	**8 H.P.**	**10 H.P.**
Two Cylinder	**12 H.P.**	**16 H.P.**	**20 H.P.**
Four Cylinder	**25 H.P.**	**35 H.P.**	**50 H.P.**

Write today for complete information and name of nearest agent

THE CLAY ENGINE MFG. CO.

664 East 72nd Street **Cleveland, Ohio**

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